

25 January, 2012

Transport Canada  
Aircraft Certification Division  
9700 Jasper Avenue  
Edmonton Alberta  
T5J 4E6

Re: FAA STC Revision for Bell 407 &amp; 206L series Helicopter Cargo Baskets

Attn: Jack Staal

TCCA File : SH00-48

Please forward the following documents to the FAA in order to bring the STC up to date:

FAA STC Application Form	8110.12	
Modification Approval Request Application Form	MOD698	Rev. 2
Transport Canada Supplemental Type Certificate (copy)	SH00-48	Issue 9
FAA Supplemental Type Certificate (copy)	SR02253NY	April 1, 2011

**[407]**

<b>A</b> (407 Provisions)	[unchanged from previous issue]
<b>B</b> (407 Low-Mounted Fixed)	[unchanged from previous issue]
<b>C</b> (407 High-Mounted Fixed)	[unchanged from previous issue]

**D** (407 Low-Mounted Q-Release)

Document Control List (Installation)	DCL701	Rev. 3
Flight Manual Supplement	FMS 701.90	Rev. 3
Instructions for Continued Airworthiness	ICA 698.90	Rev. 2
Installation Drawing (Q-R Basket)	70101	Rev. 3
Installation Drawing (Provisions)	70102	Rev. 0
Service Instructions (Sliding Door Modification)	SI698.91	Rev. 0
Document Control List (Basket Ass'y)	DCL698-1	Rev. 2
Document Control List (Beams Ass'y)	DCL698-2	Rev. 4

<b>E</b> (407 High-Mounted Q-R)	[unchanged from previous issue]
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**F** (407 Low-Mounted Q-Release - Wide Basket)

Document Control List (Installation)	DCL945-1	Rev. 0
Document Control List (Basket Ass'y)	DCL945-10	Rev. 0
Document Control List (Beams Ass'y)	DCL698-2	Rev. 4
Flight Manual Supplement	FMS 701.90	Rev. 3
Instructions for Continued Airworthiness	ICA 698.90	Rev. 2
Installation Drawing (Q-R Basket)	94501	Rev. 0
Installation Drawing (Provisions)	70102	Rev. 0
Assembly Drawing (QR Basket)	94510	Rev. 0
Assembly Drawing (Basket Body)	94511	Rev. 0
Assembly Drawing (Basket Lid)	94512	Rev. 0
Assembly Drawing (Hoop)	94520	Rev. 0
Assembly Drawing (Brace)	94621	Rev. 0
Assembly Drawing (Placard)	94627	Rev. 0
Service Instructions (Sliding Door Modification)	SI698.91	Rev. 0

**G** (407 Low-Mounted Q-Release - Ski Basket)

Document Control List (Installation)	DCL946-1	Rev. 0
Document Control List (Basket Ass'y)	DCL946-10	Rev. 0
Document Control List (Beams Ass'y)	DCL698-2	Rev. 4

Flight Manual Supplement	FMS 701.90	Rev. 3
Instructions for Continued Airworthiness	ICA 698.90	Rev. 2
Installation Drawing (Q-R Basket)	94601	Rev. 0
Installation Drawing (Provisions)	70102	Rev. 0
Assembly Drawing (QR Basket)	94610	Rev. 0
Assembly Drawing (Basket Body)	94611	Rev. 0
Assembly Drawing (Basket Lid)	94612	Rev. 0
Assembly Drawing (Hoop)	94620	Rev. 0
Assembly Drawing (Brace)	94621	Rev. 0
Assembly Drawing (Placard)	94627	Rev. 0
Service Instructions (Sliding Door Modification)	SI698.91	Rev. 0

**[206L, 206L-1, 206L-3, 206L-4 Series]**

<b>A</b> (206L series Provisions)	[unchanged from previous issue]
<b>B</b> (206L series Lo-Mounted Fixed)	[unchanged from previous issue]

<b>C</b> (206L Low-Mounted Q-Release)		
Document Control List (Installation)	DCL702	Rev. 3
Document Control List (Basket Ass'y)	DCL698-1	Rev. 2
Document Control List (Beams Ass'y)	DCL698-2	Rev. 4
Instructions for Continued Airworthiness	ICA 698.90	Rev. 2
Flight Manual Supplement	FMS 702.90	Rev. 3
Installation Drawing (QR Basket)	70201	Rev. 4
Installation Drawing (Provisions)	70202	Rev. 0
Assembly Drawing (QR Basket)	69810	Rev. 3
Assembly Drawing (Basket Body)	69811	Rev. 3
Assembly Drawing (Basket Lid)	69812	Rev. 3

<b>D</b> (206L High-Mounted Q-R)	[unchanged from previous issue]
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<b>E</b> (206L Low-Mounted Q-Release - Wide Basket)		
Document Control List (Basket Installation)	DCL945-2	Rev. 0
Document Control List (Basket Ass'y)	DCL945-10	Rev. 0
Instructions for Continued Airworthiness	ICA 698.90	Rev. 2
Flight Manual Supplement	FMS 702.90	Rev. 3
Installation Drawing (QR Basket)	94502	Rev. 0
Installation Drawing (Provisions)	70202	Rev. 0
Assembly Drawing (QR Basket)	94510	Rev. 0
Assembly Drawing (Basket Body)	94511	Rev. 0
Assembly Drawing (Basket Lid)	94512	Rev. 0
Assembly Drawing (Hoop)	94520	Rev. 0
Assembly Drawing (Brace)	94621	Rev. 0
Assembly Drawing (Placard)	94627	Rev. 0

<b>F</b> (206L Low-Mounted Q-Release - Ski Basket)		
Document Control List (Basket Installation)	DCL946-2	Rev. 0
Document Control List (Basket Ass'y)	DCL946-10	Rev. 0
Instructions for Continued Airworthiness	ICA 698.90	Rev. 2
Flight Manual Supplement	FMS 702.90	Rev. 3
Installation Drawing (QR Basket)	94602	Rev. 0
Installation Drawing (Provisions)	70202	Rev. 0
Assembly Drawing (QR Basket)	94610	Rev. 0
Assembly Drawing (Basket Body)	94611	Rev. 0



**AERO DESIGN LTD.**

2013 - 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027

Fax: 403-250-8333

www.aerodesign.ca

Assembly Drawing (Basket Lid)	94612	Rev. 0
Assembly Drawing (Hoop)	94620	Rev. 0
Assembly Drawing (Brace)	94621	Rev. 0
Assembly Drawing (Placard)	94627	Rev. 0

**(ALL) (Auxiliary Step)**

Document Control List	DCL623	Rev. 3
Installation Drawing	62301	Rev. 1

**(ALL) (Basket Modifications)**

Document Control List	DCL704	Rev. 7
Assembly Drawing (Open Front End)	70401	Rev. 0
Assembly Drawing (Lid Door)	70402	Rev. 0
Assembly Drawing (Aux Latch)	70403	Rev. 0
Assembly Drawing (Open Front End)	70404	Rev. 0
Assembly Drawing (Lid Step)	70405	Rev. 0
Assembly Drawing (Hangar Wheel)	70408	Rev. 0
Assembly Drawing (Open Front End)	70411	Rev. 0
Assembly Drawing (Gas Spring)	70412	Rev. 0

**(ALL) (Quick Release Step)**

[unchanged from previous issue]

**(ALL) Substantiation**

Engineering Report (Basket Tests - Weight Increase)	ER 698.06	Rev. 0
Engineering Report (Handle Tests)	ER 842.01	Rev. 0
Engineering Report (Wide Basket Tests)	ER 945.01	Rev. 0
Engineering Report (Ski Basket Tests)	ER 946.01	Rev. 0
Engineering Report (Flight Test Results)	FTR 945.03	Rev. 1

Every attempt has been made to provide a package of data that is as complete as possible, sorted in a fashion that resembles the multiple configurations that are found on the STC. In addition, copies of the documents have been sorted by type in separate folders, if it will help comparing similar documents.

The data has been copied onto 3 (three) separate CD-ROM disks. Please keep one copy for your files, and forward the other two to the FAA.

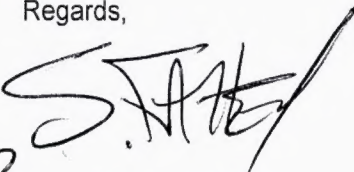
If you require more information, or must pass on any inquiry from the FAA, please inform Aero Design Ltd. as soon as possible. You may reach us either at the phone numbers above, or at the following e-mail addresses:

[ted@aerodesign.ca](mailto:ted@aerodesign.ca)  
[steve@aerodesign.ca](mailto:steve@aerodesign.ca)

(DAR 290M)  
(engineering technologist)

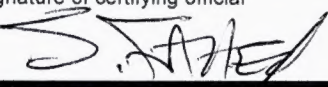
We will do our best to reply to any concern with as little delay as possible.

Regards,



**FOR** E. Burgoin, DAR 290M

Enclosure

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		FORM APPROVED O.M.B. No. 04-R0078
<b>APPLICATION FOR TYPE CERTIFICATE, PRODUCTION CERTIFICATE, OR SUPPLEMENTAL TYPE CERTIFICATE</b>		
1. Name and address of applicant Aero Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, T2E 6R7 Canada	2. Application made for - <input type="checkbox"/> Type Certificate <input type="checkbox"/> Production Certificate <input checked="" type="checkbox"/> Supplemental Type Certificate	3. Product involved <input checked="" type="checkbox"/> Aircraft <input type="checkbox"/> Engine <input type="checkbox"/> Propeller
<b>4. TYPE CERTIFICATE</b> (Complete item 4a below)		
a. Model designation(s) (All models listed are to be completely described in the required technical data, including drawings representing the design, material, specifications, construction, and performance of the aircraft, aircraft engine, propeller which is the subject of this application.)		
<b>5. PRODUCTION CERTIFICATE</b> (Complete items 5a-c below. Submit with this form, in manual form, one copy of quality control data or changes thereto covering new products, as required by applicable FAR.)		
a. Factory address (If different from 1 above)	b. Application is for - <input type="checkbox"/> New Production Certificate <input type="checkbox"/> Additions to Production Certificate (Give P.C. No.)	P.C. No.
c. Applicant is holder of or a licensee under a Type Certificate or a Supplemental Type Certificate (Attach evidence of licensing agreement and give certificate number)		T.C./S.T.C. No.
<b>6. SUPPLEMENTAL TYPE CERTIFICATE</b> (Complete items 6a-d below)		
a. Make and model designation of product to be modified Bell Helicopter (Textron) Model 206L series, 407 Type certificate Data Sheet: H-92 (FAA TCDS: H2SW)		
b. Description of modification Revision to FAA STC SR02253NY, Installation of External Cargo Basket, Quick Release Provisions, and Step This revision adds new cargo basket configurations, and increases capacity of some existing cargo baskets. See SH00-48 for configurations.		
c. Will data be available for sale or release to other persons? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	d. Will parts be manufactured for sale? (Ref. FAR 21.303) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
<b>7. CERTIFICATION</b> - I certify that the above statements are true.		
Signature of certifying official 	Title E. Burgoin DAR 290M (AERO Design Ltd.)	Date 25 January, 2012



MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD698, Rev. 1

1. NAME AND ADDRESS OF APPLICANT:		2. IDENTIFICATION OF PRODUCT				
AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7		MAKE:  Bell Helicopter (Textron)		MODEL:  206L series, 407		
ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		SERIAL No.:  All eligible		REGISTRATION:  All eligible		
3. REQUEST FOR:						
A. SUPPLEMENTAL TYPE CERTIFICATE (STC)		<input type="checkbox"/>				
B. STC/STA REVISION		<input type="checkbox"/> STC/STA No.				
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)		<input type="checkbox"/>				
D. LIMITED STC/STA REVISION		<input type="checkbox"/> LSTC/LSTA No.				
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE		<input type="checkbox"/>				
F. F.A.A. STC REVISION		<input checked="" type="checkbox"/> STC No. SR02253NY				
G. FAMILIARIZATION OF F.A.A. STC		<input type="checkbox"/> STC No.				
H. REPAIR DESIGN APPROVAL (RDC)		<input type="checkbox"/>				
I. PARTS DESIGN APPROVAL (PDA)		<input type="checkbox"/>				
4. TITLE OF MODIFICATION OR REPAIR: Quick Release Cargo Basket Installation						
5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR:  This revision adds new cargo basket configurations, and increases capacity of some existing cargo baskets. See SH00-48 for configurations.						
6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:						
A. TA NO. <u>H-92</u> B. TC No. <u>H2SW</u> C. OTHER _____						
7. PROPOSED BASIS OF APPROVAL:						
A. SAME AS TA <input checked="" type="checkbox"/> B. SAME AS TC <input type="checkbox"/> C. OTHER <input type="checkbox"/> (Please specify) _____						
8. DOCUMENTATION CHECKLIST		REQUIRED		FOR DOT USE ONLY		
		YES	NO	RECEIVED		
		YES	NO	YES	NO	DATE
COMPLIANCE PROGRAM		X				
MASTER DRAWING LIST		X				
FLIGHT MANUAL SUPPLEMENT		X				
MAINTENANCE MANUAL SUPPLEMENT			X			
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS		X				
ENGINEERING REPORTS		X				
DESIGN DRAWINGS			X			
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS		X				
ELECTRICAL LOAD ANALYSIS			X			
DRAFT STC, LSTC OR RDA			X			
WEIGHT AND MOMENT CHANGE		X				
FLIGHT TEST DATA		X				
OTHER (Specify)			X			
9. APPLICANT'S REMARKS: STC based on Transport Canada STC # SH00-48 issue 9						
10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4.						
AERO Design Ltd.						
PER: <u>[Signature]</u>		FOR <u>E. BURGON</u>		Consultant		
SIGNATURE OF APPLICANTS		TITLE		DATE		
				25 January, 2012		
11.						
SIGNATURE OF REGIONAL ENGINEER				DATE		



# Bell Cargo Basket Configuration Matrix

January 23, 2012

Application submitted 26 January, 2012

TCCA TCDS H-92 (FAA H2SW)	FAA SR02253NY Issue *		Required Documentation			Modification Basis of Certification
	Basket Configuration		Installation Document *	Flight Manual Supplement *	Instr. For Continued Airworthiness **	
Rotorcraft						
Bell Helicopter (Textron)  407	A	Provisions	DCL 700, Rev. 1	FMS 700.91, Rev. 0	ICA 700.90, Rev. 0	As per TCDS
	B	Low-Mount Fixed	DCL 606, Rev. 3	FMS 606.01, Rev. 2	ICA 492.90, Rev. 1	As per TCDS
	C	High-Mount Fixed	DCL 606-1, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
	D	Low-Mount Quick-Release	DCL 701, Rev. 4	FMS 701.90, Rev. 3 (error on STC date)	ICA 698.90, Rev. 2	As per TCDS
	E	High-Mount Quick-Release	DCL 766-1, Rev. 1 (error on STC rev)	FMS 766.91, Rev. 0	ICA 766.90, Rev. 0	As per TCDS
	F	Low-Mount - Wide Quick-Release	DCL 945-1, Rev. 0	FMS 701.90, Rev. 3	ICA 698.90, Rev. 2	As per TCDS
	G	Low-Mount - SKI Quick-Release	DCL 946-1, Rev. 0	FMS 701.90, Rev. 3	ICA 698.90, Rev. 2	As per TCDS
Bell Helicopter (Textron)  206L, 206L-1, 206L-3, 206L-4	A	Provisions	DCL 493, Rev. 6	FMS 493.01, Rev. 0	ICA 493.90, Rev. 0	FAR 27 Amdt. 27-24
	B	Low-Mount Fixed	DCL 492, Rev. 6	FMS 492.01, Rev. 2	ICA 492.90, Rev. 1	FAR 27 Amdt. 27-24
	C	Low-Mount Quick-Release	DCL 702, Rev. 3	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
	*** D	High-Mount Quick-Release	DCL 766-1, Rev. 1	FMS 766.92, Rev. 0	ICA 766.90, Rev. 0	FAR 27 Amdt. 27-30
	E	Low-Mount - Wide Quick-Release	DCL 945-2, Rev. 0	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
	F	Low-Mount - SKI Quick-Release	DCL 946-2, Rev. 0	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
ALL (407 & 206L)	Pilot Step		DCL 623, Rev. 4	n/a	ICA 623.91, Rev. 1	FAR 27 Amdt. 27-30
	Basket Modifications		DCL 704, Rev. 6	n/a	n/a	FAR 27 Amdt. 27-30
	Quick-Release Step		DCL 800-2, Rev. 0	n/a	ICA 800.90, Rev. 2	FAR 27 Amdt. 27-30

\* or later Transport Canada approved revision.

\*\* or later Transport Canada accepted revision.

\*\*\* approved emergency push-out windows or an approved sliding door are required on the side of the helicopter that as basket is installed if passengers are to be carried.

(documents changed from previous issue are noted in blue)



# Bell Cargo Basket Configuration Matrix

January 23, 2012

As of Issue 9, November 30, 2011

TCCA TCDS H-92 (FAA H2SW)	STC SH00-48 Issue 9		Required Documentation			Modification Basis of Certification
	Basket Configuration		Installation * Document	Flight Manual * Supplement	Instr. For Continued Airworthiness **	
<b>Bell Helicopter (Textron)  407</b>	<b>A</b>	Provisions	DCL 700, Rev. 1	FMS 700.91, Rev. 0	ICA 700.90, Rev. 0	As per TCDS
	<b>B</b>	Low-Mount Fixed	DCL 606, Rev. 3	FMS 606.01, Rev. 2	ICA 492.90, Rev. 1	As per TCDS
	<b>C</b>	High-Mount Fixed	DCL 606-1, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
	<b>D</b>	Low-Mount Quick-Release	DCL 701, Rev. 4	FMS 701.90, Rev. 3	ICA 698.90, Rev. 2	As per TCDS
	<b>E</b>	High-Mount Quick-Release	DCL 766-1, Rev. 0 (error on STC)	FMS 766.91, Rev. 0	ICA 766.90, Rev. 0	As per TCDS
	<b>F</b>	Low-Mount - Wide Quick-Release	DCL 945-1, Rev. 0	FMS 701.90, Rev. 3	ICA 698.90, Rev. 2	As per TCDS
	<b>G</b>	Low-Mount - SKI Quick-Release	DCL 946-1, Rev. 0	FMS 701.90, Rev. 3	ICA 698.90, Rev. 2	As per TCDS
<b>Bell Helicopter (Textron)  206L, 206L-1, 206L-3, 206L-4</b>	<b>A</b>	Provisions	DCL 493, Rev. 6	FMS 493.01, Rev. 0	ICA 493.90, Rev. 0	FAR 27 Amdt. 27-24
	<b>B</b>	Low-Mount Fixed	DCL 492, Rev. 6	FMS 492.01, Rev. 2	ICA 492.90, Rev. 1	FAR 27 Amdt. 27-24
	<b>C</b>	Low-Mount Quick-Release	DCL 702, Rev. 3	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
	<b>*** D</b>	High-Mount Quick-Release	DCL 766-1, Rev. 1	FMS 766.92, Rev. 0	ICA 766.90, Rev. 0	FAR 27 Amdt. 27-30
	<b>E</b>	Low-Mount - Wide Quick-Release	DCL 945-2, Rev. 0	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
	<b>F</b>	Low-Mount - SKI Quick-Release	DCL 946-2, Rev. 0	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
<b>ALL (407 &amp; 206L)</b>	Pilot Step		DCL 623, Rev. 4	n/a	ICA 623.91, Rev. 1	FAR 27 Amdt. 27-30
	Basket Modifications		DCL 704, Rev. 6	n/a	n/a	FAR 27 Amdt. 27-30
	Quick-Release Step		DCL 800-2, Rev. 0	n/a	ICA 800.90, Rev. 2	FAR 27 Amdt. 27-30

\* or later Transport Canada approved revision.

\*\* or later Transport Canada accepted revision.

\*\*\* approved emergency push-out windows or an approved sliding door are required on the side of the helicopter that as basket is installed if passengers are to be carried.

(documents changed from previous issue are noted in blue)





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**Bell 407 only:**

Configuration	Installation	Operation	Maintenance
<b>A</b> -External Attachment Provisions (may remain installed if basket removed)	DCL700 Rev 1, 22 September 2007*	FMS700.91 Rev 0, 4 May 2006*	ICA700.90 Rev 0, 20 April 2006 **
<b>B</b> - Low Mounted Fixed (High Skid Gear)	DCL606 Rev 3, 28 September 2007*	FMS606.01 Rev 2, 28 September 2007*	ICA492.90 Rev 1, 28 September 2007**
<b>C</b> -High Mounted Fixed***	DCL606-1, Revision 1, 13 December 2006	FMS606.01 Rev 1, 1 February 2005*	MI606.01 Rev 2, 19 July 2004**
<b>D</b> -Low Mounted Quick Release (High Skid Gear) Model 698	DCL701 Rev 4, 27 October 2011*	FMS701.90 Rev 3, 26 October 2007* 2011	ICA698.90 Rev 2, 25 October 2011**
<b>E</b> -High Mounted Quick Release***	DCL766-1 Rev 0, 26 September 2007*	FMS766.91 Rev 0, 30 October 2007*	ICA766.90 Rev 0, 26 September 2007**
<b>F</b> -Low Mounted Quick Release (High Skid Gear) Model 945	DCL945-1 Rev 0, 27 October 2011*	FMS701.90 Rev 3, 26 October 2011*	ICA698.90 Rev 2, 25 October 2011**
<b>G</b> -Low Mounted Quick Release (High Skid Gear) Model 946	DCL946-1 Rev 0, 27 October 2011*	FMS701.90 Rev 3, 26 October 2011*	ICA698.90 Rev 2, 25 October 2011**

\*or later approved revision

\*\* or later accepted revision

\*\*\* approved emergency push out windows or an approved sliding door are required on the side of the helicopter that a basket is installed on if passengers are to be carried.





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**Bell 206L, L-1, L-3, L-4 only:**

Configuration	Installation	Operation	Maintenance
A-Attachment Provisions (may remain installed if basket removed)	DCL493 Rev 6, 10 May 2006*	FMS493.01 Rev 0, 19 May 2002*	ICA493.90 Rev 0, 4 May 2006**
B- Low Mounted Fixed (High Skid Gear)	DCL492 Rev 6, 28 September 2007*	FMS492.01 Rev 2, 28 September 2007*	ICA492.90 Rev 1, 28 September 2007**
C- Low Mounted Quick Release (High Skid Gear) Model 698	DCL702 Rev 3, 27 October 2011* ✓ ?	FMS702.90 Rev 3, 26 October 2011* ✓	ICA698.90 Rev 2, 25 October 2011** ✓
D-High Mounted Quick Release ***	DCL766-1 Rev 1, 23 September 2008*	FMS766.92 Rev 0, 30 October 2007*	ICA766.90 Rev 0, 26 September 2007**
E-Low Mounted Quick Release (High Skid Gear) Model 945	DCL945-2 Rev 0, 27 October 2011* ✓	FMS702.90 Rev 3, 26 October 2011* ✓	ICA698.90 Rev 2, 25 October 2011** ✓
F-Low Mounted Quick Release (High Skid Gear) Model 946	DCL946-2 Rev 0, 27 October 2011* ✓	FMS702.90 Rev 3, 26 October 2011* ✓	ICA698.90 Rev 2, 25 October 2011** ✓

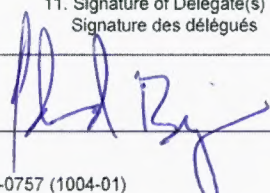
\*or later approved revision

\*\* or later accepted revision

\*\*\* approved emergency push out windows or an approved sliding door are required on the side of the helicopter that a basket is installed on if passengers are to be carried.



MINISTERIAL DELEGATE STATEMENT OF COMPLIANCE  
WITH THE CERTIFICATION BASISDÉLÉGUÉ MINISTÉRIEL CONSTAT DE CONFORMITÉ  
AVEC LA BASE DE CERTIFICATION

1. Reference No. / N° de référence NAPA File C-11-0786      Aero Design Project 698		2. Applicant Name / Nom de demandeur Aero Design Ltd.		
Part 1: Identification of Aeronautical Product Partie 1 : Identification des produits aéronautiques				
3. Applicable Design Approval Document No. / N° du document d'approbation de la conception applicable H-92				
4. Model No. / N° de modèle 206L, 206L-1, 206L-3, 206L-4, 407		5. Make / Marque Bell Helicopter Textron Canada Ltd.		
6. Type (aircraft, engine, propeller, appliance, part) / Type (aéronef, moteur hélice, appareillage, pièce) Helicopter				
Part 2: Substantiating Reports and Data Partie 2 : Rapports et des données pertinentes				
7. Number / Numéro DCL701 Revision 4		8. Title / Titre Document Control List, and all documents referenced therein.		
DCL702, Revision 3		Document Control List, and all documents referenced therein.		
9. Purpose of Finding of Compliance / But de la constat de conformité <input type="checkbox"/> New approval: <input type="checkbox"/> Supplemental Type Certificate <input type="checkbox"/> Supplemental Type Certificate-Limited <input type="checkbox"/> Repair Design Certificate <input type="checkbox"/> Other:  Findings of compliance to revise installation for increased load capacity.				<input checked="" type="checkbox"/> Revise existing approval # SH00-48  Yes      The revised data requires the revision of the approval document. Yes      The revised data is within the scope of the accepted Certification Plan.
10. Applicable Elements of Certification Basis / Éléments applicables de la base de certification <input checked="" type="checkbox"/> Certification Plan: CP945, Rev. 0 <input type="checkbox"/> Letter of exention of delegation, dated:				
Part 3: Ministerial Delegate Finding of Compliance with the Certification Basis Partie 3 : Délégué ministériel constat de conformité avec la base de certification				
Under the authority vested in me by the Minister under subsection 4.3(1) of the <i>Aeronautics Act</i> , I hereby find that the type design of the aeronautical product is in compliance with the certification basis as demonstrated by the applicant's substantiating reports and data to the best of my knowledge.		En vertu des pouvoirs qui m'ont été conférés par le ministre conformément au paragraphe 4.3(1) de la <i>Loi sur l'Aéronautique</i> , j'estime que, à ma connaissance, la définition de type du produit aéronautique est conforme à sa base de certification tel qu'il a été démontré par les rapports et les données pertinentes fournis par le demandeur.		
11. Signature of Delegate(s) Signature des délégués	12. Name / Nom	13. Delegate No. / N° de délégué	14. Date (yyyy-mm-dd) Date (aaaa-mm-jj)	
	E. Burgoin, Aero Design Ltd.	DAR 290M	2011-11-22	





**MINISTERIAL DELEGATE STATEMENT OF COMPLIANCE  
WITH THE CERTIFICATION BASIS**

**DÉLÉGUÉ MINISTÉRIEL CONSTAT DE CONFORMITÉ  
AVEC LA BASE DE CERTIFICATION**

Block 7 (continued from sheet 1)

Document Number	Revision	Title	Comment
DCL701	4	Document Control List – Bell 407 Installation	
70101	4	Quick Release Cargo Basket Installation	
70102	0	Quick Release Mounting Provisions Installation	
SI698.91	0	Service Instructions – Sliding Door Modification	
DCL702-1	3	Document Control List – Bell 206L Installation	
70201	4	Quick Release Cargo Basket Installation	
70202	0	Quick Release Mounting Provisions Installation	
DCL698-1	2	Document Control List – Cargo Basket Fabrication	
69810	3	Cargo Basket Assembly	
69811	3	Basket Body Assembly	
69812	3	Basket Lid Assembly	
69821	0	Basket Components – End Hoop	
69822	0	Basket Components – Aft Hoop	
69823	1	Basket Components – Lugs	
69827	2	Basket Components – Placard	
49210	0	Basket Components – Hoop	
49215	0	Basket Components – Spacer	
49216	0	Basket Components – Spacer	
84255	1	Handle Assembly	
84261	1	Handle Bar Assembly	
84262	1	Handle Bracket Assembly	
84265	1	Handle Lever	
84267	0	Handle Bracket	
84272	1	Bushing	
36273	1	Lid Bracket	
36274	2	Bushing	
36275	3	Bushing	
36277	0	Handle Bar	
36278	1	Spring	
36280	2	Brace	
ER698.01	0	Engineering Report	
ER698.06	0	Engineering Report	

DCL698-2	4	Document Control List – Beams Fabrication
69830	3	Forward Beam Fabrication
69831	3	Aft Beam Fabrication
ER698.02	0	Engineering Report
TP698.03	0	Test Report
ER698.04	0	Engineering Report
ER698.06	0	Engineering Report

Documents listed below this line (if any) cannot be approved by the delegate:

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FMS701.90	3	Flight Manual Supplement (Bell 407)
FMS702.90	3	Flight Manual Supplement (Bell 206L Series)
ICA698.90	2	Instructions for Continued Airworthiness



# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
69830 69831	Forward Beam Fabrication Aft Beam Fabrication	3 3
<b>ENGINEERING DOCUMENTS</b>		
ER698.02 TP698.03 ER698.04 ER698.06	Engineering Report Test Plan Engineering Report Engineering Report	0 0 0 0
APPROVAL:	ORIGINAL DATE: 3 May, 2006  REVISION DATE: 27 October, 2011	<b>AERO DESIGN LTD.</b> 2013 – 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
	SHEET 1 OF 1	<b>Quick Release Mounting Beams</b>
	<b>DCL698-2</b>	Rev. <b>4</b>

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION								
<b>FABRICATION DOCUMENTS</b>										
69810	Cargo Basket Assembly	3 ✓								
69811	Basket Body Assembly	3 ✓								
69812	Basket Lid Assembly	3 ✓								
69821	Basket Components - End Hoop	1 ✓								
69822	Basket Components - Aft Hoop	1 ✓								
69823	Basket Components - Lugs	1 ✓								
69827	Basket Components - Placard	2 ✓								
49210	Basket Components - Hoops	1 -								
49215	Basket Components - Spacer	0 -								
49216	Basket Components - Spacer	0 -								
84255	Handle Assembly	1 ✓								
84261	Handle Bar Assembly	1 ✓								
84262	Handle Bracket Assembly	1 ✓								
84265	Handle Lever	1 ✓								
84267	Handle Bracket	0 ✓								
84272	Bushing	1 ✓								
36273	Lid Bracket	1 ✓								
36274	Bushing	2 ✓								
36275	Bushing	3 ✓								
36277	Handle Bar	0 ✓								
36278	Spring	1 ✓								
36280	Brace	2 ✓								
<b>ENGINEERING DOCUMENTS</b>										
ER698.01	Engineering Report	0 ✓								
ER698.06	Engineering Report	0 ✓								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" rowspan="3" style="width: 30%; vertical-align: top;">APPROVAL:</td><td style="width: 20%; vertical-align: top;">ORIGINAL DATE: 3 May, 2006  REVISION DATE: 27 October, 2011</td><td style="width: 50%; vertical-align: top;"> <b>AERO DESIGN LTD.</b>                      2013 – 39<sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7                      Ph. (403) 250-8027                      Fax. (403) 250-8333                 </td></tr> <tr> <td style="vertical-align: top;">SHEET 1 OF 1</td><td style="text-align: center; vertical-align: top;"> <b>Quick Release Cargo Basket Assembly</b> </td></tr> <tr> <td style="text-align: center; vertical-align: top;"> <b>DCL698-1</b> </td><td style="text-align: center; vertical-align: top;">                     Rev.   <b>2</b> </td></tr> </table>			APPROVAL:		ORIGINAL DATE: 3 May, 2006  REVISION DATE: 27 October, 2011	<b>AERO DESIGN LTD.</b> 2013 – 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333	SHEET 1 OF 1	<b>Quick Release Cargo Basket Assembly</b>	<b>DCL698-1</b>	Rev.  <b>2</b>
APPROVAL:		ORIGINAL DATE: 3 May, 2006  REVISION DATE: 27 October, 2011			<b>AERO DESIGN LTD.</b> 2013 – 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333					
		SHEET 1 OF 1			<b>Quick Release Cargo Basket Assembly</b>					
		<b>DCL698-1</b>	Rev.  <b>2</b>							

**AERO Design Ltd.**

**ENGINEERING REPORT**  
**ER698.05**

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**BELL 206L SERIES, 407**

**QUICK RELEASE BEAMS**  
**LIGHT WALL MATERIAL**

Not USED

Prepared by: Jeff Clarke, CET

Approved by: E. Burgoin, P.Eng., DAR 290M

Revision 0, 26 January 2011

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## 1.0 INTRODUCTION

This report is to document the next generation of quick release mounting beams. It has been determined through testing of a similar configuration that a lighter wall tube may be sufficient to carry ultimate loads without failure. Overall construction of the beams remains the same.

The basket attachments are changed to use horizontal slots on the aft beam to allow for some variation in the longitudinal spacing of the beams. The configuration is identical to the Eurocopter AS350 configuration.

## 2.0 REFERENCE TEXT

AERO Design Ltd. Reports ER698.01 ER698.02, TP698.03, ER698.04

AERO Design Ltd. Drawings 69832 and 69833

## 3.0 BASIS OF CERTIFICATION

TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

*This report demonstrates that the installation of the Light Wall Quick Release Beams complies with the original basis of certification.*

## 4.0 APPLICABILITY OF AIRWORTHINESS DIRECTIVES

Airworthiness Directives applicable to the Bell 206L Series and 407 were reviewed, and none were found to affect this project.



## 5.0 LOADS

BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor:	$n_{e\_up} := 1.5$
Ultimate Forward Emergency Landing Load Factor:	$n_{e\_fwd} := 4.0$
Ultimate Sideward Emergency Landing Load Factor:	$n_{e\_side} := 2.0$
Ultimate Downward Emergency Landing Load Factor:	$n_{e\_down} := 4.0$

FAR 27.625

Fitting Factor (does not apply to articles being tested):  $n_{ff} := 1.15$

FAR 27.303

Safety Factor:  $n_{sf} := 1.5$

FAR 27.337(a)

Limit Positive Maneuvering LoadFactor:  $n_{man} := 3.5$

$n_{man\_ult} := n_{man} \cdot n_{sf}$

Ultimate Positive Maneuvering LoadFactor:  $n_{man\_ult} = 5.25$

Limit Negative Maneuvering LoadFactor:  $n_{man\_n} := -1.0$

$n_{man\_neg\_u} := n_{man\_n} \cdot n_{sf}$

Ultimate Negative Maneuvering LoadFactor:  $n_{man\_neg\_u} = -1.5$

CRITICAL ULTIMATE LOAD FACTORS:

Downward:	Ultimate Positive Maneuvering LoadFactor:	$n_{man\_ult} = 5.25$
Forward:	Ultimate Forward Emergency Landing Load Factor:	$n_{e\_fwd} = 4.00$
Sideward:	Ultimate Sideward Emergency Landing Load Factor:	$n_{e\_side} = 2.00$
Upward:	Ultimate Upward Emergency Landing Load Factor:	$n_{e\_up} = 1.50$

Note: The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

## 5.1 Inertia Loads

The positive maneuvering load is the only critical condition.

$W_{\text{basket}} := 45 \text{ lbf}$	Weight of basket
$W_{\text{cargo}} := 200 \text{ lbf}$	Weight of cargo (max)
$W_{\text{beam}} := 6 \text{ lbf}$	Weight of beam (each)

$$P_{\text{man\_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man\_lim}}$$

$$P_{\text{man\_lim}} = 858 \text{ lbf} \quad \text{Limit maneuvering load due to cargo and basket}$$

$$P_{\text{man\_ult}} := P_{\text{man\_lim}} \cdot n_{\text{sf}}$$

$$P_{\text{man\_ult}} = 1286 \text{ lbf} \quad \text{Ultimate maneuvering load due to cargo and basket}$$

The basket will also be tested to see if the load capacity can be increased.

$$W_{\text{cargo}} := 225 \text{ lbf} \quad \text{Weight of cargo (max)}$$

$$P_{\text{man\_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man\_lim}}$$

$$P_{\text{man\_lim}} = 945 \text{ lbf} \quad \text{Limit maneuvering load due to cargo and basket}$$

$$P_{\text{man\_ult}} := P_{\text{man\_lim}} \cdot n_{\text{sf}}$$

$$P_{\text{man\_ult}} = 1418 \text{ lbf} \quad \text{Ultimate maneuvering load due to cargo and basket}$$

$$W_{\text{cargo}} := 250 \text{ lbf} \quad \text{Weight of cargo (max)}$$

$$P_{\text{man\_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man\_lim}}$$

$$P_{\text{man\_lim}} = 1033 \text{ lbf} \quad \text{Limit maneuvering load due to cargo and basket}$$

$$P_{\text{man\_ult}} := P_{\text{man\_lim}} \cdot n_{\text{sf}}$$

$$P_{\text{man\_ult}} = 1549 \text{ lbf} \quad \text{Ultimate maneuvering load due to cargo and basket}$$



## 5.2 Drag Load

$$l_{\text{basket}} := 75.75 \text{ in}$$

Length of basket.

$$w_{\text{basket}} := 22 \text{ in}$$

Width of basket.

$$h_{\text{basket}} := 16 \text{ in}$$

Height of basket.

$$A_f := w_{\text{basket}} \cdot h_{\text{basket}}$$

$$A_f = 352 \text{ in}^2$$

Frontal Area of basket.

$$A_p := l_{\text{basket}} \cdot w_{\text{basket}}$$

$$A_p = 1666 \text{ in}^2$$

Planar Area of basket.

$$\frac{l_{\text{basket}}}{w_{\text{basket}}} = 3.4$$

Fineness ratio of basket

$$C_{D0} := 1.1$$

Drag Coefficient of Basket, (overestimated)  
(Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

$$V_{\text{ne}} := 140 \text{ knots}$$

Never-Exceed-Speed of Bell 407.  
(Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{\text{ne}}}{0.9}$$

$$V_d = 156 \text{ knots}$$

Design Dive Speed of Bell 407

$$P_{\text{drag\_lim}} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{D0}$$

$$P_{\text{drag\_lim}} = 220 \text{ lbf}$$

Limit Drag load on basket.

$$P_{\text{drag\_ult}} := P_{\text{drag\_lim}} \cdot n_{\text{sf}}$$

$$P_{\text{drag\_ult}} = 331 \text{ lbf}$$

Ultimate Drag load on basket.

## 6.0 STRUCTURAL COMPLIANCE – JULY 2009

Structural compliance is demonstrated by test. The entire cargo basket configuration is tested. A jig simulating the helicopter attachments was fabricated. A pair of quick release beams was fabricated in accordance with drawing 69832 and 69833. The beams were mounted on the jig, and a basket body fabricated in accordance with drawing 69811 was installed on the beams.

The maneuvering load is applied by stacking bags of lead shot (25 lbs each) evenly over the bottom of the basket. The drag load is applied by pulling on a piece of plywood spanning the front face of the basket with a come-along attached to a load cell.

### 6.1 Limit Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{\text{man\_lim}} = 858\text{lbf} \quad \text{Limit maneuvering load due to cargo and basket}$$

$$P_{\text{man\_lim\_test}} := P_{\text{man\_lim}} - 30\text{lbf}$$

$$P_{\text{man\_lim\_test}} = 828\text{lbf} \quad \text{Limit load for test}$$

The basket was loaded with 34 bags of lead shot (850 lbs total), and pulled 340 lbs.



Figure 6.1.1 – Limit Maneuvering Load – 200 lbs Cargo



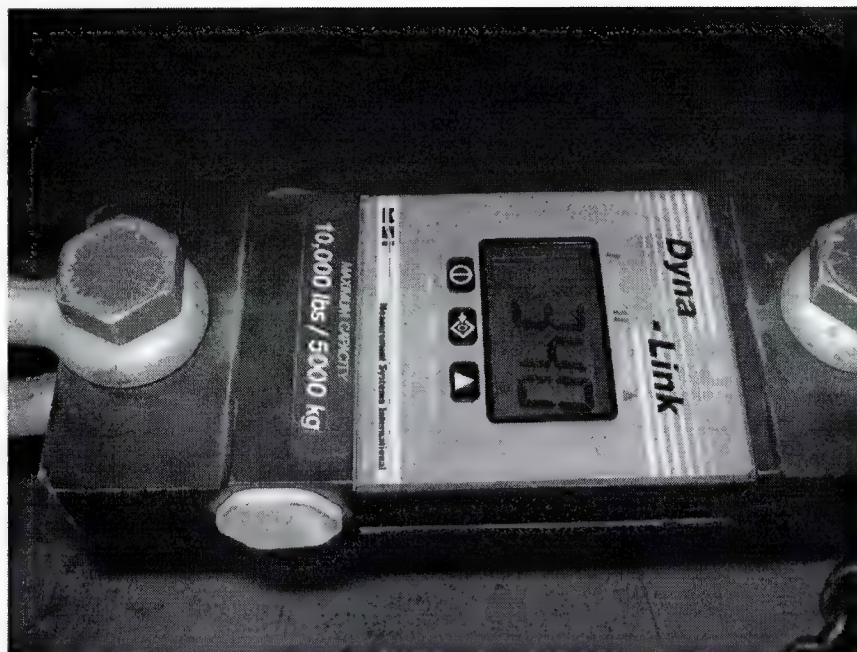


Figure 6.1.2 – Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was no deformation found.

## 6.2 Limit Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{\text{man\_lim}} = 945\text{lbf} \quad \text{Limit maneuvering load due to cargo and basket}$$

$$P_{\text{man\_lim\_test}} := P_{\text{man\_lim}} - 30\text{lbf}$$

$$P_{\text{man\_lim\_test}} = 915\text{lbf} \quad \text{Limit load for test}$$

The basket was loaded with 37 bags of lead shot (925 lbs), and pulled 340 lbs.

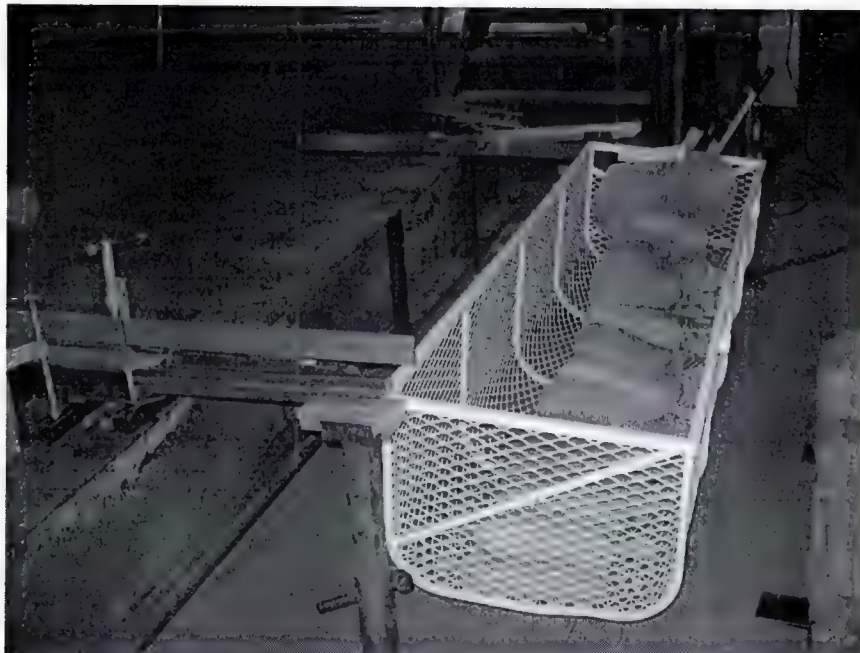


Figure 6.2.1 – Limit Maneuvering Load, 225 lbs Cargo



Figure 6.2.2 – Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was none found.



### 6.3 Ultimate Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{\text{man\_ult}} = 1286\text{lbf} \quad \text{Ultimate maneuvering load due to cargo and basket}$$

$$P_{\text{man\_ult\_test}} := P_{\text{man\_ult}} - 30\text{lbf}$$

$$P_{\text{man\_ult\_test}} = 1256\text{lbf} \quad \text{Ultimate load for test}$$

The basket was loaded with 51 bags of lead shot (1275 lbs), and pulled 490 lbs.

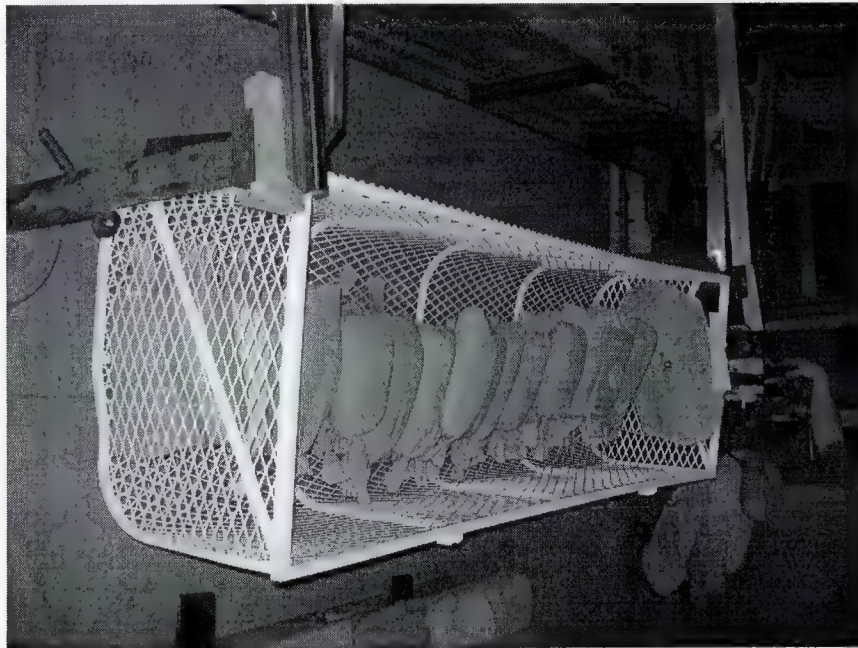


Figure 6.3.1 – Ultimate Maneuvering Load, 200 lbs Cargo

The batteries in the load cell died before a picture could be taken of the drag load.

The basket and beams sustained the ultimate maneuvering and drag loads for more than 3 seconds without failure. The light wall beams are acceptable for use with a basket rated at 200 lbs of cargo.

### 6.4 Ultimate Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{\text{man\_ult}} = 1418\text{lbf} \quad \text{Ultimate maneuvering load due to cargo and basket}$$

$$P_{\text{man\_ult\_test}} := P_{\text{man\_ult}} - 30\text{lbf}$$

$$P_{\text{man\_ult\_test}} = 1388\text{lbf} \quad \text{Ultimate load for test}$$

The total load required is 56 bags of lead shot (1400 lbs). Loading continued from the previous condition (51 bags, 490 lbs drag). The beams carried 54 bags for more than 3 seconds, but failed after the 55<sup>th</sup> bag was placed in the basket.

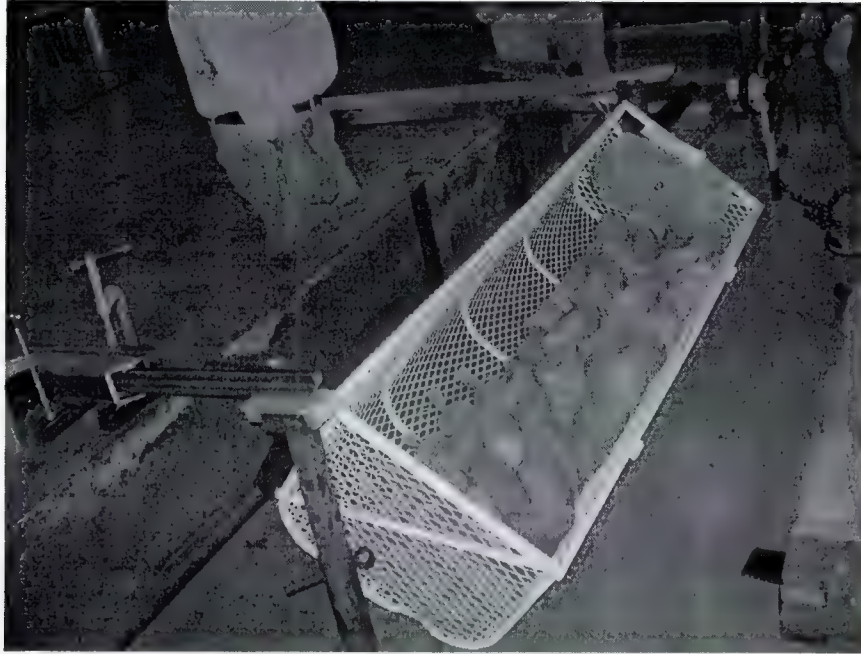


Figure 6.4.1 – Maneuvering Load After Failure of Beams



Figure 6.4.2 – Aft Beam After Failure



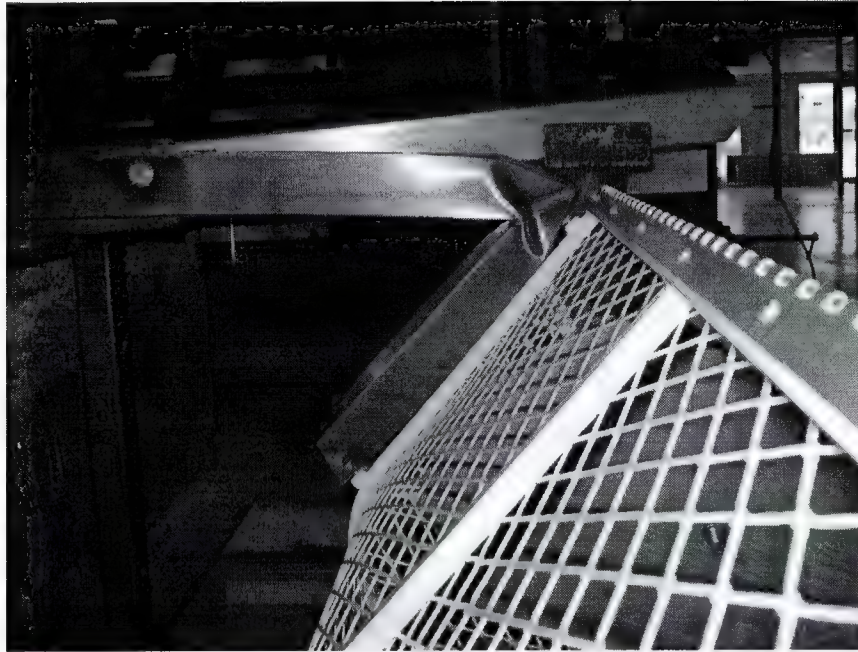


Figure 6.4.3 – Forward Beam After Failure

Since the beams failed before reaching ultimate load, the basket cannot be rated to carry 225 lbs cargo.

## 7.0 STRUCTURAL COMPLIANCE – JANUARY 2011

Following the testing in section 6.0, there were no beams produced in accordance with drawings 69832 and 69833. Inspection of the failed beams indicates that the failure occurred due to the drag load causing the sides of the beams to buckle out of plane at the corner which then caused the beam to fail due to the down load.

The beams have been redesigned to resist buckling from the drag load as follows:

- using heavy wall tube on the 45° corner of the aft beam
- welding a web at the corner on the forward beam

Structural compliance is demonstrated by test. The entire cargo basket configuration is tested. A jig simulating the helicopter attachments was fabricated. A pair of quick release beams was fabricated in accordance with updated drawings 69832 and 69833. The beams were mounted on the jig, and a basket body fabricated using stainless steel (see ER926.01) in accordance with drawing 69811 was installed on the beams.

The maneuvering load is applied by stacking bags of lead shot (25 lbs each) evenly over the bottom of the basket. The drag load is applied by pulling on a piece of plywood spanning the front face of the basket with a come-along attached to a load cell.

### 7.1 Limit Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

$$P_{lim\_man} = 858 \text{ lbs} - 33 \text{ lbs}$$

$$P_{lim\_man} = 825 \text{ lbs}$$

Limit maneuvering load to be applied in test



$$P_{\text{drag\_lim}} = 220 \text{ lbs}$$

Limit drag load

The basket was loaded with 825 lbs (33 bags of lead shot), and pulled 230 lbs.

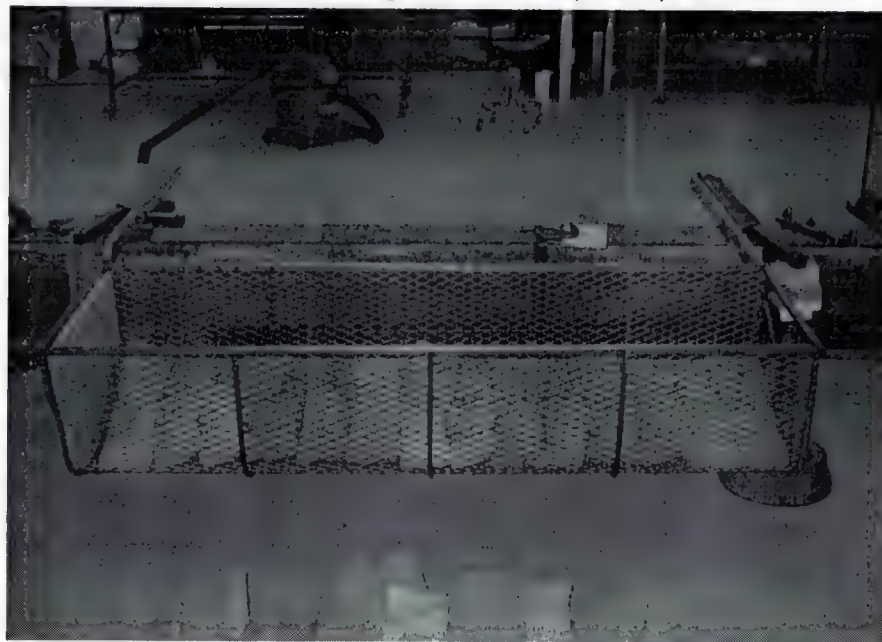


Figure 7.1.1 – Limit Maneuvering Load (200 lbs Cargo)

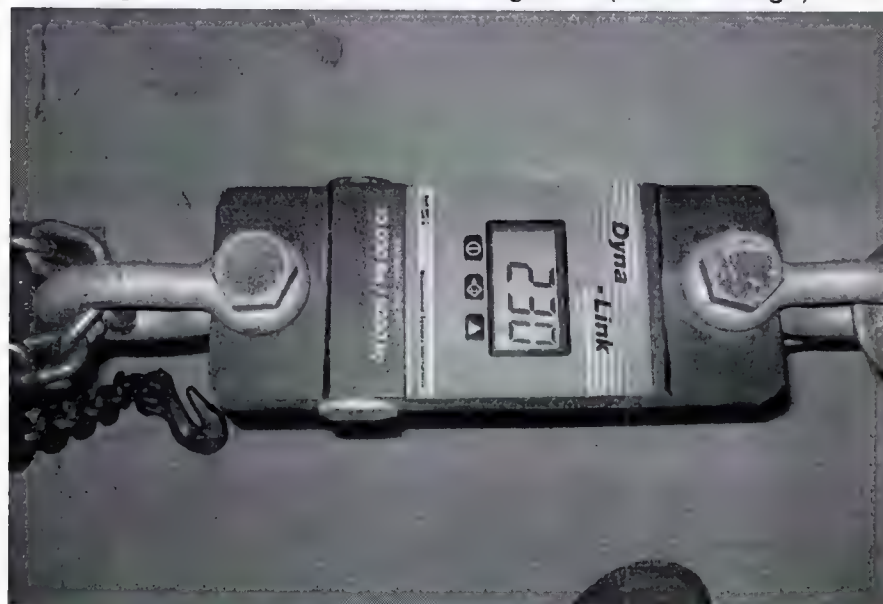


Figure 7.1.2 – Limit Drag Load

The loads were applied for greater than three seconds. The loads were removed and the beams were checked for permanent deformation. There was none found.

## 7.2 Limit Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

$$P_{lim\_man} = 945 \text{ lbs} - 33 \text{ lbs}$$

$$P_{lim\_man} = 912 \text{ lbs}$$

Limit maneuvering load to be applied in test

$$P_{drag\_lim} = 220 \text{ lbs}$$

Limit drag load

The basket was loaded with 925 lbs (37 bags of lead shot), and pulled 230 lbs.

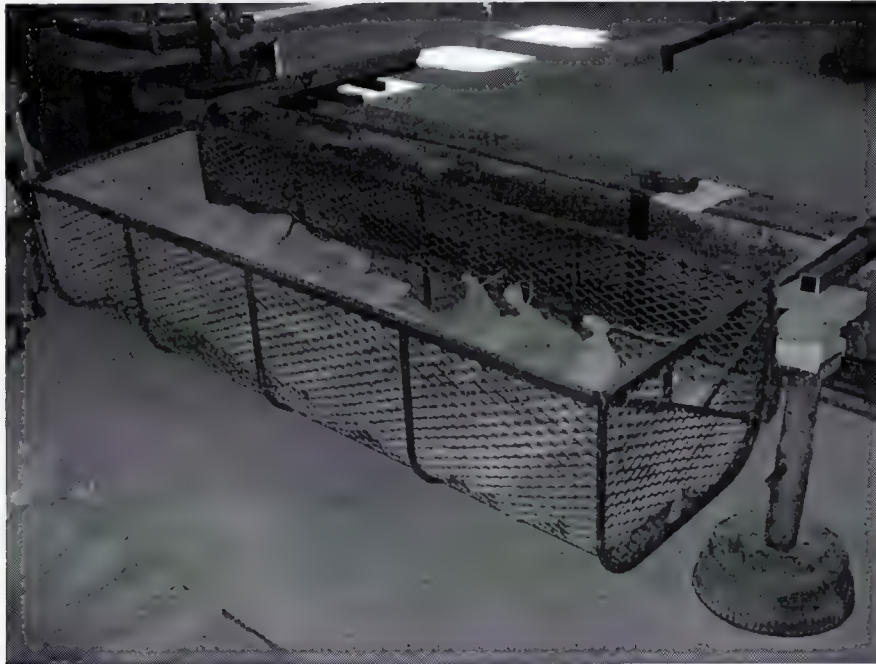


Figure 7.2.1 – Limit Maneuvering Load (225 lbs Cargo)

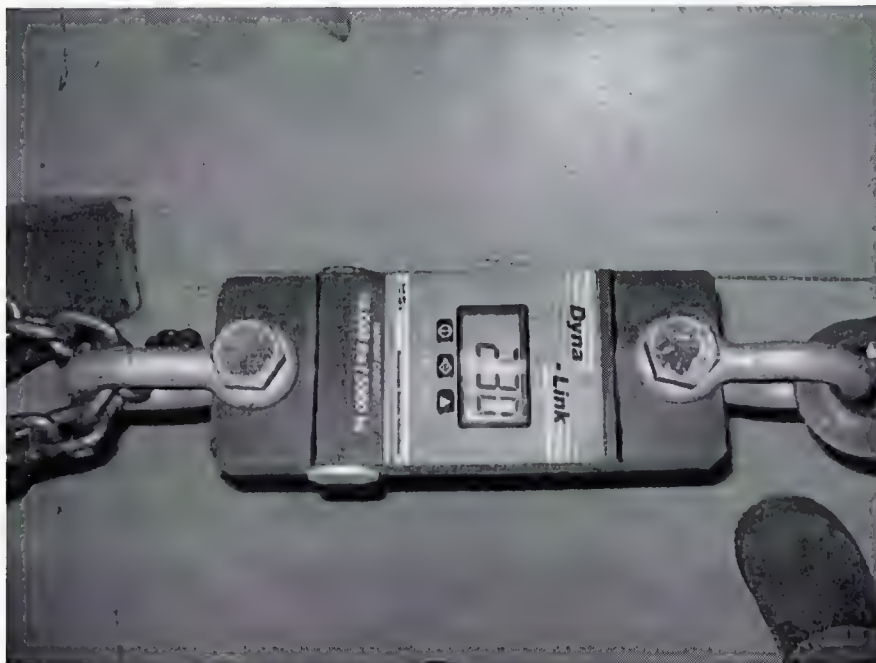


Figure 7.2.2 – Limit Drag Load

The loads were applied for greater than three seconds. The loads were removed and the beams were checked for permanent deformation. There was none found.

### 7.3 Limit Load – 250 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

$$P_{lim\_man} = 1033 \text{ lbs} - 33 \text{ lbs}$$

$$P_{lim\_man} = 1000 \text{ lbs} \quad \text{Limit maneuvering load to be applied in test}$$

$$P_{drag\_lim} = 220 \text{ lbs} \quad \text{Limit drag load}$$

The basket was loaded with 1000 lbs (40 bags of lead shot), and pulled 230 lbs.



Figure 7.3.1 – Limit Maneuvering Load (250 lbs Cargo)



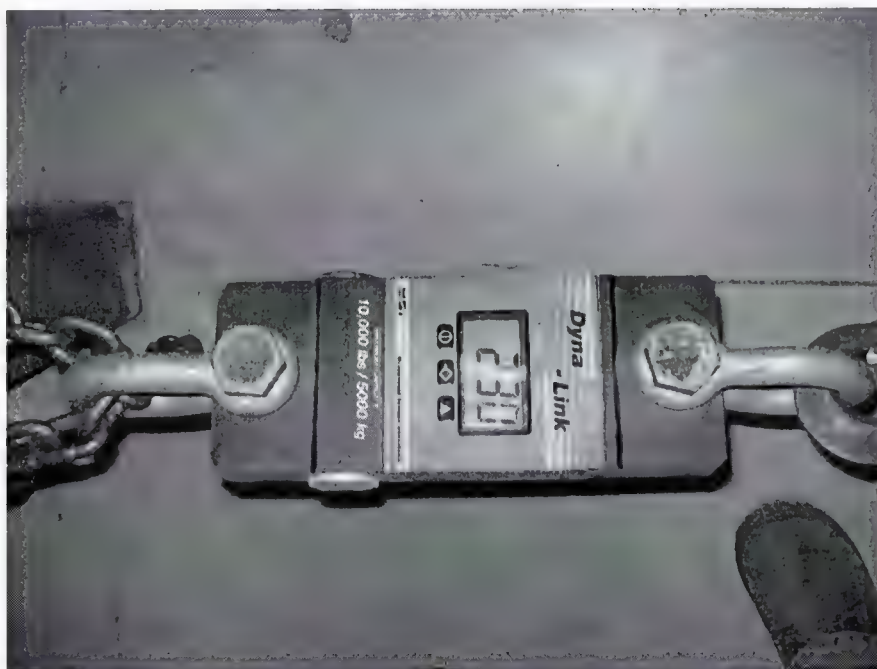


Figure 7.3.2 – Limit Drag Load

The loads were applied for greater than three seconds. The loads were removed and the beams were checked for permanent deformation. There was none found.

#### 7.4 Ultimate Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

$$P_{lim\_man} = 1286 \text{ lbs} - 33 \text{ lbs}$$

$$P_{lim\_man} = 1253 \text{ lbs} \quad \text{Ultimate maneuvering load to be applied in test}$$

$$P_{drag\_lim} = 331 \text{ lbs} \quad \text{Ultimate drag load}$$

The basket was loaded with 1275 lbs (51 bags of lead shot), and pulled 340 lbs.

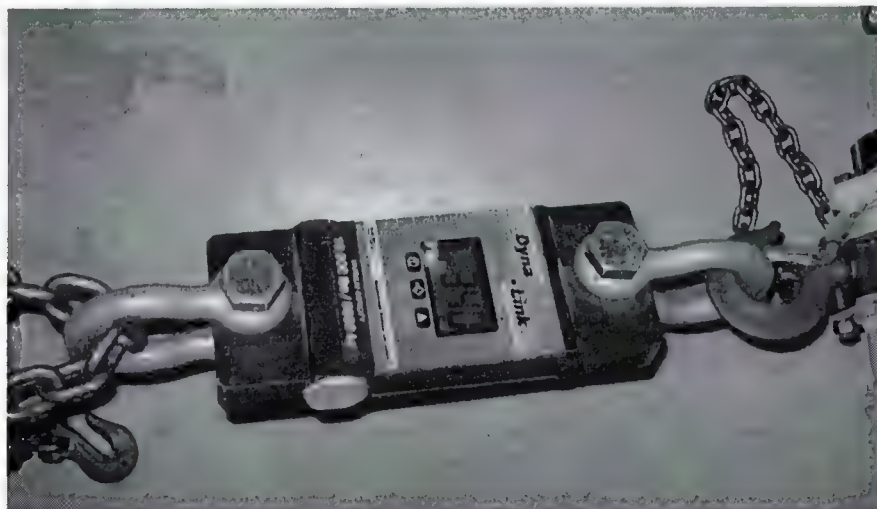


Figure 7.4.1 – Ultimate Drag Load

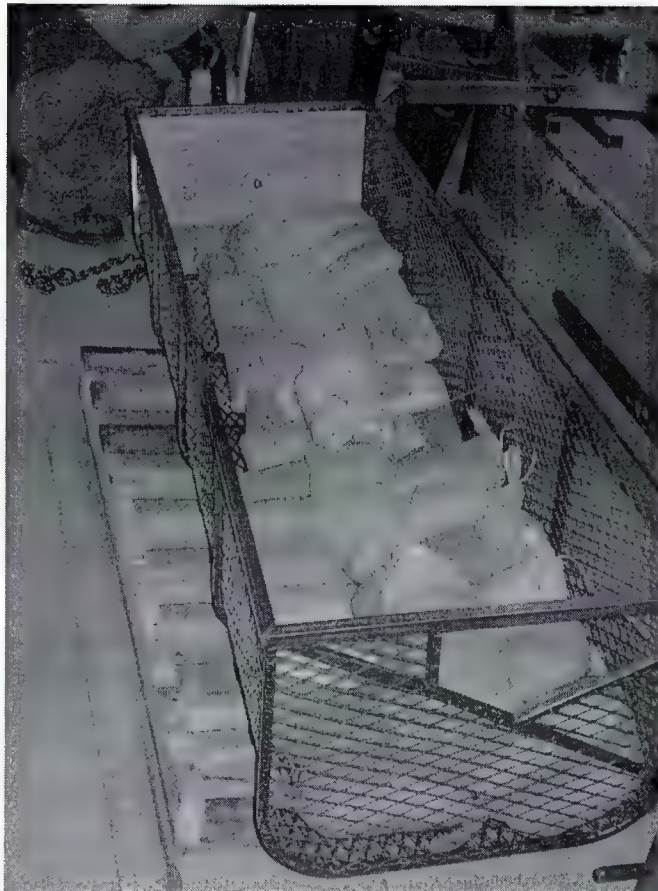


Figure 7.4.2 – Ultimate Maneuvering Load (200 lbs Cargo)

The basket and beams carried the ultimate load for more than three seconds. The beams were inspected for failure while under load. There was no failure found. Testing continued to ultimate load for 225 lbs cargo.

### 7.5 Ultimate Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

$$P_{lim\_man} = 1418 \text{ lbs} - 33 \text{ lbs}$$

$$P_{lim\_man} = 1385 \text{ lbs}$$

Ultimate maneuvering load to be applied in test

$$P_{drag\_lim} = 331 \text{ lbs}$$

Ultimate drag load

The basket was loaded with 1400 lbs (56 bags of lead shot), and pulled 340 lbs.

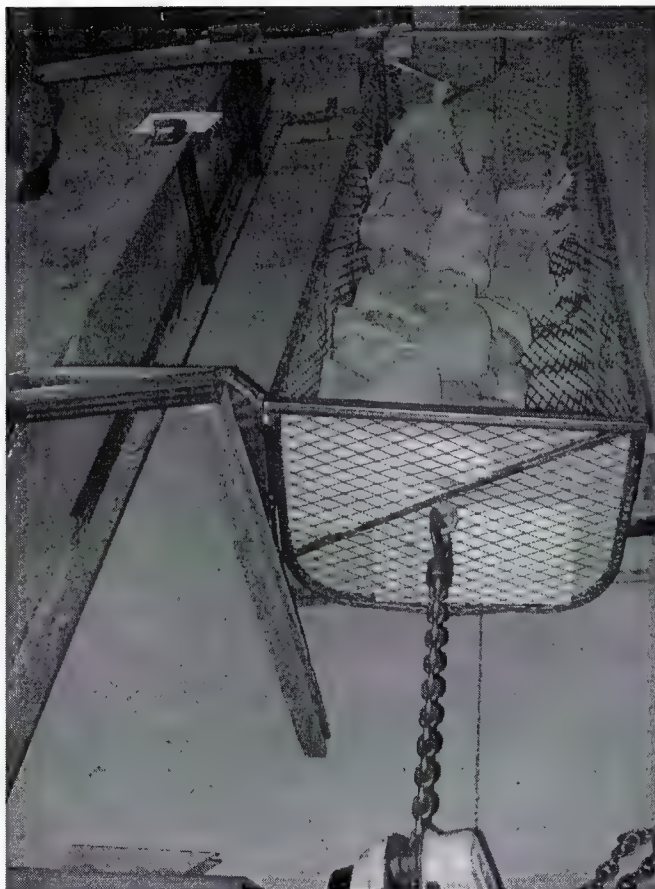


Figure 7.5.1 – Ultimate Maneuvering Load (200 lbs Cargo)

The basket and beams carried the ultimate load for more than three seconds. The beams were inspected for failure while under load. There was no failure found. Testing continued to ultimate load for 250 lbs cargo.

## 7.6 Ultimate Load – 250 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

$$P_{lim\_man} = 1549 \text{ lbs} - 33 \text{ lbs}$$

$$P_{lim\_man} = 1516 \text{ lbs} \quad \text{Ultimate maneuvering load to be applied in test}$$

$$P_{drag\_lim} = 331 \text{ lbs} \quad \text{Ultimate drag load}$$

The basket was loaded with 1525 lbs (61 bags of lead shot), and pulled 340 lbs.





Figure 6.1.7 – Ultimate Maneuvering Load (250 lbs Cargo)

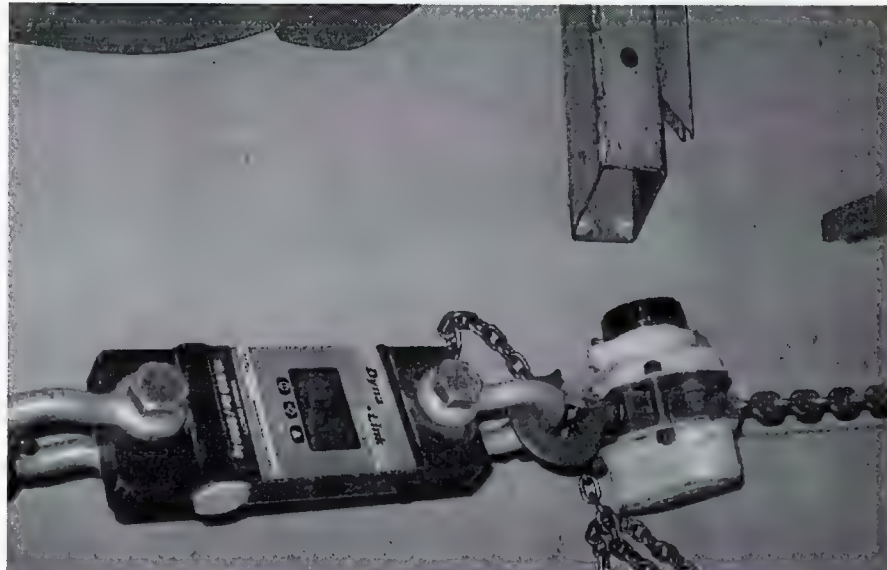


Figure 6.1.8 – Ultimate Drag Load

The basket and beams carried the ultimate load for more than three seconds. The beams were inspected for failure while under load. There was no failure found. The load was removed and the beams were inspected for permanent deformation and failure. The aft beam has the most permanent deformation, it is deflected about 1/8" in the fore/aft direction and about 3/8" down. The sides at the corners did not buckle as they did in the last test. There was no failure found. The Bell 206L/407 light wall beams are acceptable for installation with an increased cargo load of 250 lbs.

**AERO Design Ltd.**

**ENGINEERING REPORT  
ER698.06**

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**BELL 206L SERIES, 407**

**QUICK RELEASE CARGO BASKET  
LOAD INCREASE TO 300 LBS**

Prepared by: Jeff Clarke, CET

Approved by: E. Burgoin, P.Eng., DAR 290M

Revision 0, 14 October 2011

---

AERO Design Ltd.  
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## 1.0 INTRODUCTION

In order to remain competitive the load capacity of the Quick Release Cargo Basket must be increased.

Previous testing of beams fabricated from light wall material (0.065" wall, ER698.05) demonstrated the beams are capability of supporting a 250 lb cargo load at ultimate load conditions. This configuration was not pursued and was not added to the approval.

This report demonstrates that the original configuration of beams and cargo basket are capable of supporting a 275 or 300 lb cargo load at ultimate load conditions.

## 2.0 REFERENCE TEXT

AERO Design Ltd. Reports ER698.01 ER698.02, TP698.03, ER698.04, ER698.05, ER842.01

AERO Design Ltd. Drawings 69830, 69831, 69811

## 3.0 BASIS OF CERTIFICATION

TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

*This report demonstrates that the installation of the Light Wall Quick Release Beams complies with the original basis of certification.*

## 4.0 APPLICABILITY OF AIRWORTHINESS DIRECTIVES

Airworthiness Directives applicable to the Bell 206L Series and 407 were reviewed, and none were found to affect this project.

## 5.0 LOADS

### BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor:	$n_{e\_up} := 1.5$
Ultimate Forward Emergency Landing Load Factor:	$n_{e\_fwd} := 4.0$
Ultimate Sideward Emergency Landing Load Factor:	$n_{e\_side} := 2.0$
Ultimate Downward Emergency Landing Load Factor:	$n_{e\_down} := 4.0$

FAR 27.625      Fitting Factor (does not apply to articles being tested):  $n_{ff} := 1.15$

FAR 27.303      Safety Factor:  $n_{sf} := 1.5$

FAR 27.337(a)

Limit Positive Maneuvering LoadFactor:  $n_{man} := 3.5$

$n_{man\_ult} := n_{man} \cdot n_{sf}$       Ultimate Positive Maneuvering LoadFactor:  $n_{man\_ult} = 5.25$

Limit Negative Maneuvering LoadFactor:  $n_{man\_n} := -1.0$

$n_{man\_neg\_u} := n_{man\_n} \cdot n_{sf}$       Ultimate Negative Maneuvering LoadFactor:  $n_{man\_neg\_u} = -1.5$

### CRITICAL ULTIMATE LOAD FACTORS:

Downward:	Ultimate Positive Maneuvering LoadFactor:	$n_{man\_ult} = 5.25$
Forward:	Ultimate Forward Emergency Landing Load Factor:	$n_{e\_fwd} = 4.00$
Sideward:	Ultimate Sideward Emergency Landing Load Factor:	$n_{e\_side} = 2.00$
Upward:	Ultimate Upward Emergency Landing Load Factor:	$n_{e\_up} = 1.50$

Note: The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

## 5.1 Inertia Loads

The positive maneuvering load is the only critical condition.

$W_{\text{basket}} := 55 \text{ lbf}$  Weight of basket (including options, basic basket is less)

$W_{\text{cargo}} := 275 \text{ lbf}$  Weight of cargo (max)

$$P_{\text{man\_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man\_lim}}$$

$P_{\text{man\_lim}} = 1155 \text{ lbf}$  Limit maneuvering load due to cargo and basket

$$P_{\text{man\_ult}} := P_{\text{man\_lim}} \cdot n_{\text{sf}}$$

$P_{\text{man\_ult}} = 1733 \text{ lbf}$  Ultimate maneuvering load due to cargo and basket

$W_{\text{cargo}} := 300 \text{ lbf}$  Weight of cargo (max)

$$P_{\text{man\_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man\_lim}}$$

$P_{\text{man\_lim}} = 1243 \text{ lbf}$  Limit maneuvering load due to cargo and basket

$$P_{\text{man\_ult}} := P_{\text{man\_lim}} \cdot n_{\text{sf}}$$

$P_{\text{man\_ult}} = 1864 \text{ lbf}$  Ultimate maneuvering load due to cargo and basket

## 5.2 Drag Load

$l_{\text{basket}} := 75.75 \text{ in}$  Length of basket.

$w_{\text{basket}} := 25.5 \text{ in}$  Width of basket.

$h_{\text{basket}} := 18.25 \text{ in}$  Height of basket.

$A_f := 450 \text{ in}^2$  Frontal Area of basket.

$\frac{l_{\text{basket}}}{h_{\text{basket}}} = 4.2$  Fineness ratio of basket

$C_{Do} := 1.1$  Drag Coefficient of Basket, (overestimated)  
(Ref. Hoerner, Fluid Dynamic Drag, Chapter 3, Figure 22).

$\rho := 0.002378 \frac{\text{slug}}{\text{ft}^3}$  Density of air at Sea Level.



$$V_{ne} := 140 \text{ knots}$$

Never-Exceed-Speed of Bell 407.  
(Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 156 \text{ knots}$$

Design Dive Speed of Bell 407

$$P_{\text{drag\_lim}} := \frac{\rho}{2} \cdot V_d^2 \cdot A_F C_{Do}$$

$$P_{\text{drag\_lim}} = 282 \text{ lbf}$$

Limit Drag load on basket.

$$P_{\text{drag\_ult}} := P_{\text{drag\_lim}} \cdot n_{sf}$$

$$P_{\text{drag\_ult}} = 423 \text{ lbf}$$

Ultimate Drag load on basket.

## 6.0 STRUCTURAL COMPLIANCE

Structural compliance is demonstrated by test. The entire cargo basket configuration is tested. A jig simulating the helicopter attachments was fabricated. A pair of quick release beams was fabricated in accordance with drawing 69830 and 69831. The beams were mounted on the jig, and a basket body fabricated in accordance with drawing 69811 was installed on the beams.

The maneuvering load is applied by stacking bags of lead shot (25 lbs each) evenly over the bottom of the basket. The drag load is applied by pulling on a piece of plywood spanning the aft face of the basket with a come-along attached to a load cell.

### 6.1 Limit Load – 275 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket body weighs 25 lbs.

$$P_{\text{man\_lim}} = 1155 \text{ lbf}$$

Limit maneuvering load due to cargo and basket

$$P_{\text{man\_lim\_test}} := P_{\text{man\_lim}} - 25 \cdot \text{lbf}$$

$$P_{\text{man\_lim\_test}} = 1130 \text{ lbf}$$

Limit load for test

The basket was loaded with 46 bags of lead shot (1150 lbs total), and pulled 330 lbs.



Figure 6.1.1 – Limit Maneuvering Load – 250 lbs Cargo



Figure 6.1.2 – Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was no deformation found.

## 6.2 Limit Load – 300 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket body weighs 25 lbs.

$$P_{\text{man\_lim}} = 1243\text{lbf} \quad \text{Limit maneuvering load due to cargo and basket}$$

$$P_{\text{man\_lim\_test}} := P_{\text{man\_lim}} - 25\text{lbf}$$

$$P_{\text{man\_lim\_test}} = 1218\text{lbf} \quad \text{Limit load for test}$$

The basket was loaded with 49 bags of lead shot (1225 lbs), and pulled 310 lbs.



Figure 6.2.1 – Limit Maneuvering Load, 300 lbs Cargo





Figure 6.2.2 – Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was none found.

### 6.3 Ultimate Load – 275 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket body weighs 25 lbs.

$$P_{\text{man\_ult}} = 1733\text{lbf} \quad \text{Ultimate maneuvering load due to cargo and basket}$$

$$P_{\text{man\_ult\_test}} := P_{\text{man\_ult}} - 25\text{lbf}$$

$$P_{\text{man\_ult\_test}} = 1708\text{lbf} \quad \text{Ultimate load for test}$$

The basket was loaded with 69 bags of lead shot (1725 lbs), and pulled 450 lbs.

The basket and beams sustained the ultimate maneuvering and drag loads for more than 3 seconds without failure. Testing continued to ultimate load with 300 lbs cargo.

### 6.4 Ultimate Load – 300 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket body weighs 25 lbs.

$$P_{\text{man\_ult}} = 1864\text{lbf}$$

Ultimate maneuvering load due to cargo and basket

$$P_{\text{man\_ult\_test}} := P_{\text{man\_ult}} - 25\text{lbf}$$

$$P_{\text{man\_ult\_test}} = 1839\text{lbf}$$

Ultimate load for test

The total load required is 74 bags of lead shot (1850 lbs). Loading continued from the previous condition (69 bags, 450 lbs drag).



Figure 6.4.1 – Ultimate Maneuvering Load, 300 lbs Cargo

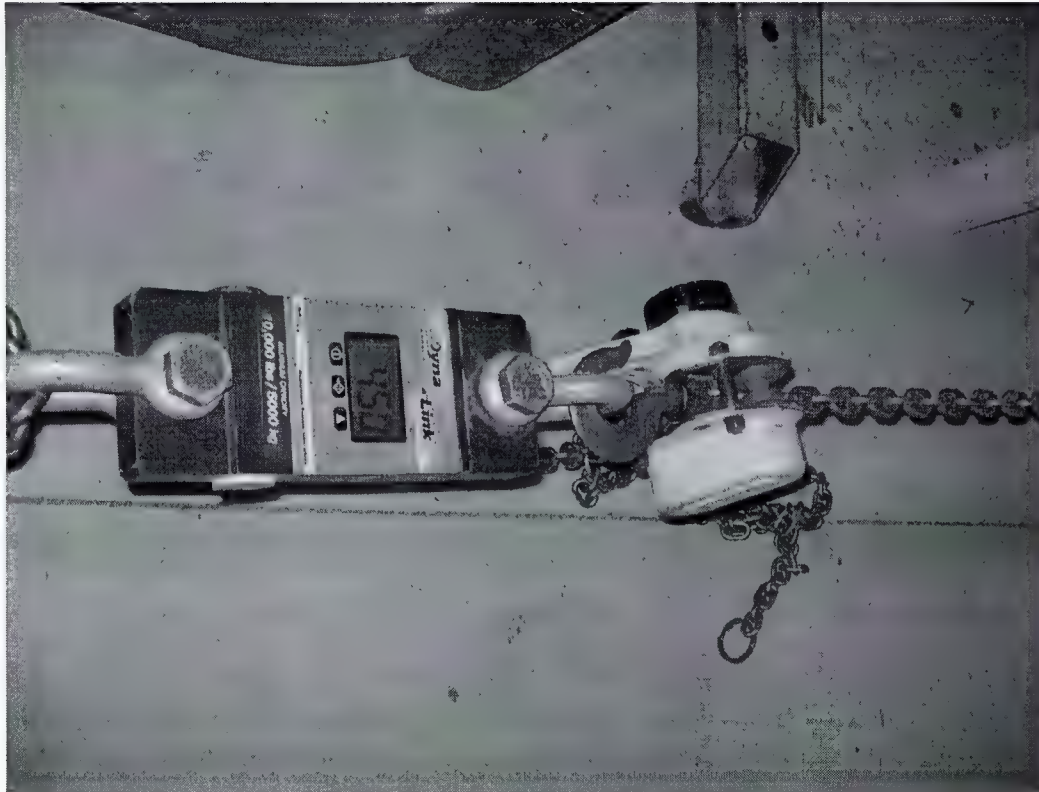


Figure 6.4.2 – Ultimate Drag Load

The basket and beams sustained the ultimate maneuvering and drag loads for more than 3 seconds without failure. The basket and beams were inspected after removal of the loads. The basket showed no signs of permanent deformation. Both beams were slightly deformed, the aft beam was worst, bent down about 1/8" at the outboard end.

The quick release cargo basket and beams are acceptable for a cargo load of 300 lbs.

### **6.5 Forward Emergency Landing Condition**

The basket is located below the cabin. Forward deflection of the basket does not endanger the occupants in a crash.

### **6.6 Sideward Emergency Landing Condition**

Sideward deflection of the basket does not endanger the occupants. The basket lid must remain closed in the sideward loading condition. The handle has been demonstrated to remain closed under 2g sideward load, reference Engineering Report ER842.01.

### **6.7 Upward Emergency Landing Condition**

Upward deflection of the basket does not endanger the occupants. The basket lid must remain closed in the upward loading condition. The handle system has been demonstrated to remain closed under 450 lbs upward load (1.5g x 300 lbs), reference Engineering Report ER842.01.





Department of Transport

# Supplemental Type Certificate

This approval is issued to:

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada T2E 6R7

**Number:** SH00-48

**Issue No.:** 8

**Approval Date:** December 08, 2000

**Issue Date:** November 22, 2010

**Responsible Office:**

Prairie and Northern

**Aircraft/Engine Type or Model:**

BELL 206L, 206L-1, 206L-3, 206L-4, 407

**Canadian Type Certificate or Equivalent:**

BELL 206L, 206L-1, 206L-3, 206L-4, 407 H-92

**Description of Type Design Change:**

Installation of Cargo Basket / External Attachment  
Provisions/ Auxiliary step./ Quick Release Step

**Installation/Operating Data,  
Required Equipment and Limitations:**

**Bell 407 only:**

**407 Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 20 April 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)



**Conditions:** This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.

D.S. Austen  
For Minister of Transport

## DESIGN APPROVAL DOCUMENT TRANSFER

Transfer of this design approval document requires the prior approval of the Minister and the reissue of this document in the name of the transferee.

The reissue of this design approval document in the name of the transferee will be contingent on the holder and the transferee fulfilling their responsibilities as described in section 521.357 of the *Canadian Aviation Regulations*.

I have reviewed the above requirements and recognize that until the above requirements are met the certificate and all its privileges and obligations will not be transferred.

---

Signature of holder/signature du titulaire

## TRANSFERT DU DOCUMENT D'APPROBATION DE LA CONCEPTION

L'approbation préalable du ministre est exigée en vue d'un transfert de ce document d'approbation de la conception et la réédition de ce document au nom du cessionnaire.

La réédition de ce document d'approbation de la conception au nom du cessionnaire est conditionnelle à la satisfaction des exigences et des responsabilités, du titulaire et du cessionnaire, décrites dans l'article 521.357 du *Règlement de l'aviation canadien*.

J'ai examiné les conditions susmentionnées et je comprends que le transfert du certificat et des privilèges et des obligations s'y rattachant ne sera pas effectué tant que ces conditions n'auront pas été respectées.

---

date/date

*(Continuation Sheet)*

Number: SH00-48 Issue 8

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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**Bell 407 only:** (Continued)**407 Configuration B – External Cargo Basket (Low Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration C – External Cargo Basket Installation (High Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 1, dated 13 December 2006, or later approved revision. Approved emergency exit “push out” windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**Bell 407 only:** (Continued)

**407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):**

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 3, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 407 Configuration E - External Cargo Basket Installation (High Mounted Quick Release)**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 1, dated 23 September 2008, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)

*(Continuation Sheet)*

Number: SH00-48 Issue 8

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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 206L, L-1, L-3, L-4 only:**

**206L Series Configuration A – External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**206L Series Configuration B - External Cargo Basket (Low Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

**206L Series Configuration C - External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 2, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

---

**206L Series Configuration D – External Cargo Basket Installation (High Mounted Quick Release):**

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 1, dated 23 September 2008, or later approved revision. Approved emergency exit “push-out” windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada accepted, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

**All Models (Bell 206L series and 407)****Auxiliary Step Installation:**

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 3, dated 17 November 2010, or later approved revision.

Transport Canada accepted AERO Design Ltd. Instructions for Continued Airworthiness ICA 623.91 Rev 0 dated 5 May 2010, or later accepted revision, is required with this installation.

The auxiliary step is optional and is not required with installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR 27 amendment 27-30.  
(continued on page 7)



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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**All Models (Bell 206L series and 407)****Cargo Basket Modifications:**

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 6, dated 29 April 2010, or later approved revision. Eligibility limitations are noted on the drawings.

**Quick Release Step Installation:**

Installation of the Low Mounted Quick Release Cargo Basket (407 - Configuration D; 206L - Configuration C) is required prior to installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List DCL800-2, Rev. 0, dated 2 December 2008, or later approved revision.

The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2, dated 2 December 2008, or later accepted revision, is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27, amendment 27-30.

— End —

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>		
70101	Quick Release Cargo Basket Installation	3
70102	Quick Release Mounting Provisions Installation	0
ICA698.90	Instructions for Continued Airworthiness	1
FMS701.90	Flight Manual Supplement	2
SI698.91	Service Instructions – Sliding Door Modification	0
<b>FABRICATION DOCUMENTS</b>		
DCL698-1	Document Control List for Quick Release Cargo Basket	1
DCL698-2	Document Control List for Beams	3
<b>ENGINEERING DOCUMENTS</b>		
<b>APPROVAL:</b>		
 <div> <div>Transport Canada</div> <div>Transports Canada</div> </div> <div> <div>AIRCRAFT CERTIFICATION DIVISION</div> <div>APPROVED</div> </div> <div> <div>By <i>[Signature]</i></div> <div>Appr'l No. <u>SH00-48</u></div> <div>Appr'l Date <u>00-12-08</u></div> <div>Issue No. <u>7</u></div> <div>Issue Date <u>09-04-07</u></div> <div>YY-MM-DD</div> </div>		<div>ORIGINAL DATE:</div> <div>10 May, 2006</div> <div>REVISION DATE:</div> <div>2 December, 2008</div>
<div> <div><b>AERO DESIGN LTD.</b></div> <div>2013 – 39<sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7</div> <div>Ph. (403) 250-8027</div> <div>Fax. (403) 250-8333</div> </div>		
SHEET 1 OF 1		<div> <div>Bell 407</div> <div>Quick Release Cargo Basket Installation</div> </div>
<b>DCL701</b>		<div>Rev.</div> <div><b>3</b></div>



## BELL 407

### ROTORCRAFT FLIGHT MANUAL SUPPLEMENT for the INSTALLATION of the AERO DESIGN QUICK RELEASE CARGO BASKET AND/OR QUICK RELEASE STEP

Supplemental Type Certificate No. SH00-48

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Bell 407 when fitted with the Quick Release Cargo Basket or Quick Release Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.



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V	Weight and Balance	5
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## Record of Revisions

Revision	Issue Date	Pages Revised	Date Inserted	By
0	05 May, 2006	None		
1	09 Nov, 2006	2, 6		
2	17 July, 2008	All		

## I LIMITATIONS

1. The maximum load in the AERO Design Ltd. Quick Release Cargo Basket is 200 lb. (90.5 kg).
2. Flight operations limited to VFR conditions with AERO Design Ltd. Cargo Basket installed.
3. Maximum lateral or rearward speed limited to 25 KIAS.
4. Maximum winds from aft quadrants limited to 25 KIAS for takeoff, landing or hover flight.
5.  $V_{NE}$  is 140 KIAS except when the  $V_{NE}$  of the basic rotorcraft is more restrictive, in which case the lower  $V_{NE}$  applies.
6. Quick Release Step may be installed when the basket is removed.

## II NORMAL PROCEDURES

1. Pre-flight inspections:
  - a) Ensure that all cargo stored in the cargo basket does is properly tied down and secured for flight.
  - b) Ensure that the lid of cargo basket is closed and secured.
  - c) Ensure the basket is locked in position on the beams. Pull up on the forward and aft end of the basket to check.
  - d) Ensure the step is locked in position on the beams. Pull up on the forward and aft end of the step to check.

### CAUTION

It is possible to exceed the lateral centre of gravity limits of the rotorcraft under some loading conditions. Pilots must ensure that lateral C of G is within limits when loading the basket.

## III EMERGENCY PROCEDURES

No change from basic Approved Flight Manual.

### CAUTION:

The rotorcraft glide angle is steeper than that of the basic helicopter when the AERO Design Ltd. Cargo Basket is installed.



#### **IV PERFORMANCE**

Climb performance may be reduced by up to 200 fpm.

Cruise speeds are reduced by approximately 10 kts. (11 mph).

## V WEIGHT AND BALANCE

1. The following weight and balance is for the low mounted quick release cargo basket configuration, installed in accordance with drawing 70101.

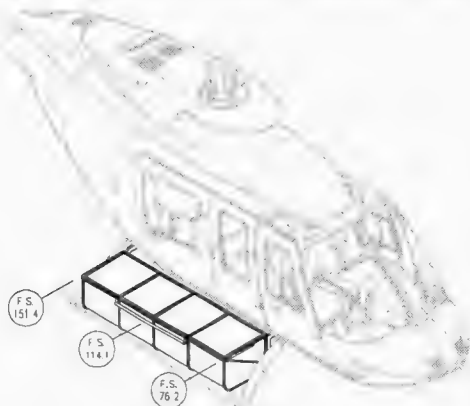


Figure 1 – Low Mounted Quick Release Cargo Basket Configuration

Low Mounted Quick Release Cargo Basket Configuration

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
Basket Only <sup>1</sup>	45.0 lb	114.1 in	5134 in*lb	38.5 in	1733 in*lb
	20.4 kg	2898 mm	59 122 mm*kg	978 mm	19 949 mm*kg
Cargo <sup>2</sup> (MAX)	200 lb	114.1 in	22 820 in*lb	38.5 in	7700 in*lb
	90.9 kg	2898 mm	263 467 mm*kg	978 mm	88 900 mm*kg

<sup>1</sup> Weight and balance is for Cargo Basket only. Mounting beams and attachment provisions are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

<sup>2</sup> Longitudinal and Lateral moment arms are given only for the center of the Cargo Basket. Due to the length of the basket, some loading arrangements may require that actual moment arms be measured, to determine the correct moments about the center of gravity.

### CAUTION:

It is possible to exceed lateral CG limits in some configurations.

2. The following weight and balance is for the quick release step configuration, installed in accordance with drawing 80002.

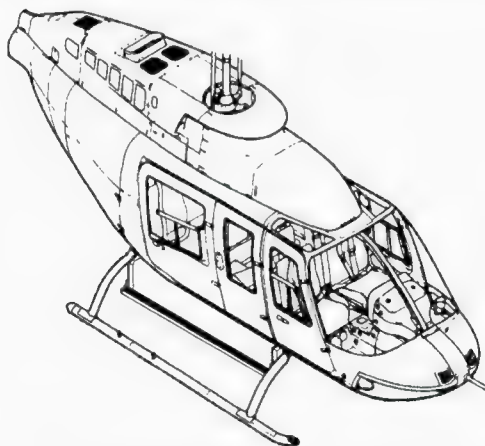


Figure 2 – Low Mounted Quick Release Cargo Basket Configuration

Low Mounted Quick Release Step Configuration

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
Step Only <sup>1</sup>	8.2 lb	114.1 in	935.6 in*lb	29.3 in	239.9 in*lb
	3.7 kg	2898 mm	10 723 mm*kg	744 mm	2 754 mm*kg

Low Mounted Quick Release Step Configuration (Stowed Position)

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
Step Only <sup>1</sup>	8.2 lb	114.1 in	935.6 in*lb	23.7 in	194.3 in*lb
	3.7 kg	2898 mm	10 723 mm*kg	602 mm	2 227 mm*kg

<sup>1</sup> Weight and balance is for Step only. Mounting beams and attachment provisions are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.



## VI INSTALLATION / REMOVAL INSTRUCTIONS

The Quick Release Mounting Provisions are installed in accordance with drawing 70102. The Quick Release Basket is installed in accordance with drawing 70101. The Quick Release Step is installed in accordance with drawing 80002. Removal of the basket or step leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of basket or step and which weight and balance amendment is in effect is required.

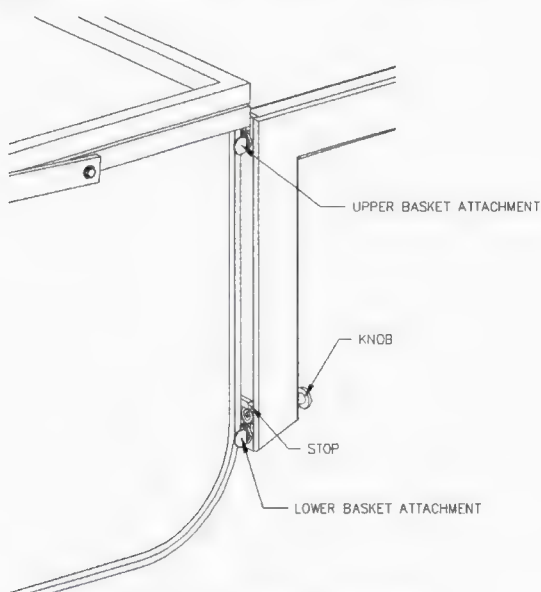


Figure 3 – Basket Attachment

1. Basket Installation - Refer to Figure 3.
  1. Set basket upper attachment into slot on forward and aft beams.
  2. At forward end of basket, lift until lower attachment fitting hits stop over keyway. Push fitting into keyway and slide basket down until locked. Repeat for aft end.
2. Basket Removal - Refer to Figure 3.
  1. Pull knob at bottom end of forward beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in slot in beam. Repeat for aft end.

2. Lift basket until upper attachments are out of slots on beams and remove basket from helicopter.

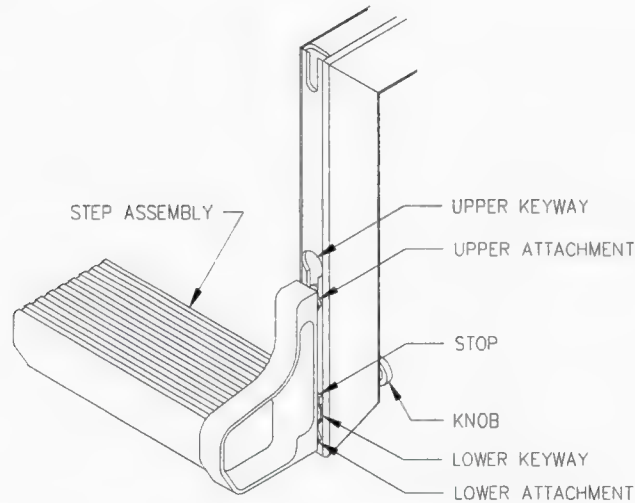

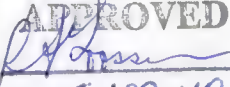


Figure 4 – Step Attachment

3. Step Installation – Refer to Figure 4.
  1. Set upper attachment into upper keyway on forward and aft beams.
  2. Lift step until lower attachment hits stop over keyway. Push fitting into keyway and slid down until locked.
4. Step Removal – Refer to Figure 4.
  1. Pull knob at bottom end of forward beam and lift step until the lower attachment fitting is free of keyway. Keep upper attachment in keyway in beam. Repeat for aft end.
  2. Lift step until upper attachments are out of keyways in beams and remove from helicopter.

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>		
70201	Quick Release Cargo Basket Installation	3
70202	Quick Release Mounting Provisions Installation	0
ICA698.90	Instructions for Continued Airworthiness	1
FMS702.90	Flight Manual Supplement	2
<b>FABRICATION DOCUMENTS</b>		
DCL698-1	Document Control List for Quick Release Cargo Basket	1
DCL698-2	Document Control List for Beams	3
<b>ENGINEERING DOCUMENTS</b>		
<b>APPROVAL:</b>		
 <div style="display: flex; justify-content: space-between;"> <div>Transport Canada</div> <div>Transports Canada</div> </div> <div style="text-align: center;"> <b>AIRCRAFT CERTIFICATION DIVISION</b>  <b>APPROVED</b>            By             Appr'l No. <u>SH00-48</u>            Appr'l Date <u>00-12-08</u>            Issue No. <u>7</u>            Issue Date <u>09-04-07</u>  <small>YY-MM-DD</small> </div>	ORIGINAL DATE: 10 May, 2006  REVISION DATE: 2 December, 2008	<div style="text-align: center;"> <b>AERO DESIGN LTD.</b>            2013 - 39<sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7            Ph. (403) 250-8027            Fax. (403) 250-8333         </div>
	SHEET 1 OF 1	<b>Bell 206L Series</b> <b>Quick Release Cargo Basket</b> <b>Installation</b>
	DCL702	Rev.  <div style="font-size: 2em; font-weight: bold;">2</div>



## BELL 206L SERIES

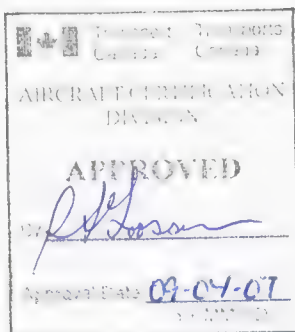
### ROTORCRAFT FLIGHT MANUAL SUPPLEMENT for the INSTALLATION of the AERO DESIGN QUICK RELEASE CARGO BASKET AND/OR QUICK RELEASE STEP

Supplemental Type Certificate No. SH00-48

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Bell 206L Series when fitted with the Quick Release Cargo Basket or Quick Release Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.



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0	05 May, 2006	None		
1	09 Nov, 2006	2, 6		
2	17 July, 2008	All		

## **I LIMITATIONS**

1. The maximum load in the AERO Design Ltd. Quick Release Cargo Basket is 200 lb. (90.5 kg).
2. Flight operations limited to VFR conditions with AERO Design Ltd. Cargo Basket installed.
3. Quick Release Step may be installed when the basket is removed.

## **II NORMAL PROCEDURES**

1. Pre-flight inspections:
  - a) Ensure that all cargo stored in the cargo basket does not extend outside the basket, is properly tied down and secured for flight.
  - b) Ensure that the lid of cargo basket is closed and secured.
  - c) Ensure the basket is locked in position on the beams. Pull up on the forward and aft end of the basket to check.
  - d) Ensure the step is locked in position on the beams. Pull up on the forward and aft end of the step to check.

### **CAUTION**

It is possible to exceed the lateral centre of gravity limits of the rotorcraft under some loading conditions. Pilots must ensure that lateral C of G is within limits when loading the basket.

## **III EMERGENCY PROCEDURES**

No change from basic Approved Flight Manual.

### **CAUTION:**

The rotorcraft glide angle is steeper than that of the basic helicopter when the AERO Design Ltd. Cargo Basket is installed.

## **IV PERFORMANCE**

Climb performance may be reduced by up to 350 fpm with the basket installed.

Cruise speeds are reduced by approximately 10 mph with the basket installed.

## V WEIGHT AND BALANCE

1. The following weight and balance is for the low mounted quick release cargo basket configuration, installed in accordance with drawing 70201.

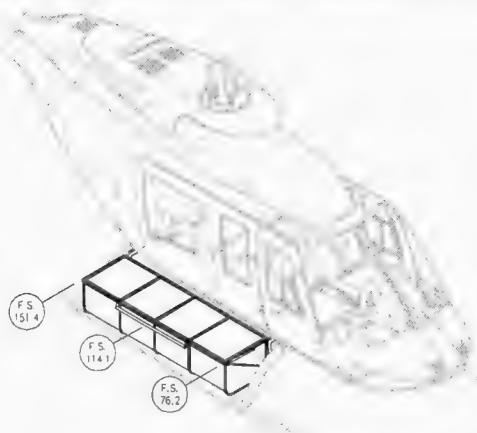


Figure 1 – Low Mounted Quick Release Cargo Basket Configuration

Low Mounted Quick Release Cargo Basket Configuration

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
Basket Only <sup>1</sup>	45.0 lb	114.1 in	5134 in*lb	38.5 in	1733 in*lb
	20.4 kg	2898 mm	59 122 mm*kg	978 mm	19 949 mm*kg
Cargo <sup>2</sup> (MAX)	200 lb	114.1 in	22 820 in*lb	38.5 in	7700 in*lb
	90.9 kg	2898 mm	263 467 mm*kg	978 mm	88 900 mm*kg

<sup>1</sup> Weight and balance is for Cargo Basket only. Mounting beams and attachment provisions are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

<sup>2</sup> Longitudinal and Lateral moment arms are given only for the center of the Cargo Basket. Due to the length of the basket, some loading arrangements may require that actual moment arms be measured, to determine the correct moments about the center of gravity.

### CAUTION:

It is possible to exceed lateral CG limits in some configurations.



2. The following weight and balance is for the quick release step configuration, installed in accordance with drawing 80002.

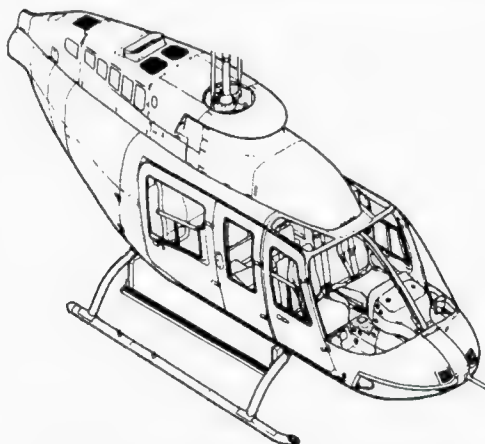


Figure 2 – Low Mounted Quick Release Cargo Basket Configuration

Low Mounted Quick Release Step Configuration

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
Step Only <sup>1</sup>	8.2 lb	114.1 in	935.6 in*lb	29.3 in	239.9 in*lb
	3.7 kg	2898 mm	10 723 mm*kg	744 mm	2 754 mm*kg

Low Mounted Quick Release Step Configuration (Stowed Position)

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
Step Only <sup>1</sup>	8.2 lb	114.1 in	935.6 in*lb	23.7 in	194.3 in*lb
	3.7 kg	2898 mm	10 723 mm*kg	602 mm	2 227 mm*kg

<sup>1</sup> Weight and balance is for Step only. Mounting beams and attachment provisions are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

## VI INSTALLATION / REMOVAL INSTRUCTIONS

The Quick Release Mounting Provisions are installed in accordance with drawing 70202. The Quick Release Basket is installed in accordance with drawing 70201. The Quick Release Step is installed in accordance with drawing 80002. Removal of the basket or step leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of basket or step and which weight and balance amendment is in effect is required.

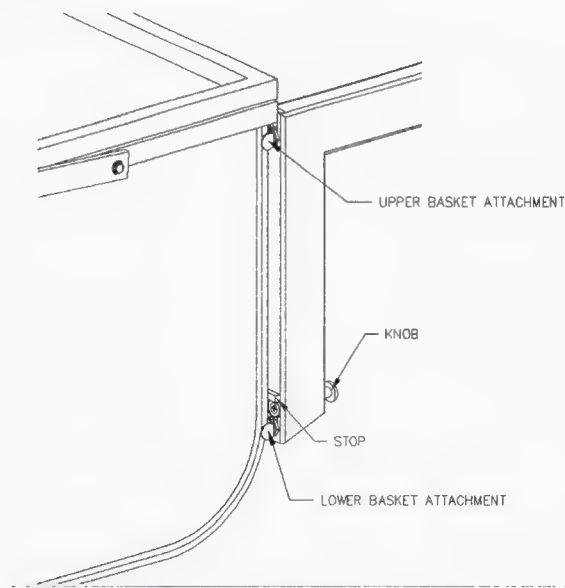


Figure 3 – Basket Attachment

1. Installation - Refer to Figure 3.
  1. Set basket upper attachment into slot on forward and aft beams.
  2. At forward end of basket, lift until lower attachment fitting hits stop over keyway. Push fitting into keyway and slide basket down until locked. Repeat for aft end.
2. Removal - Refer to Figure 3.
  1. Pull knob at bottom end of forward beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in slot in beam. Repeat for aft end.

2. Lift basket until upper attachments are out of slots on beams and remove basket from helicopter.

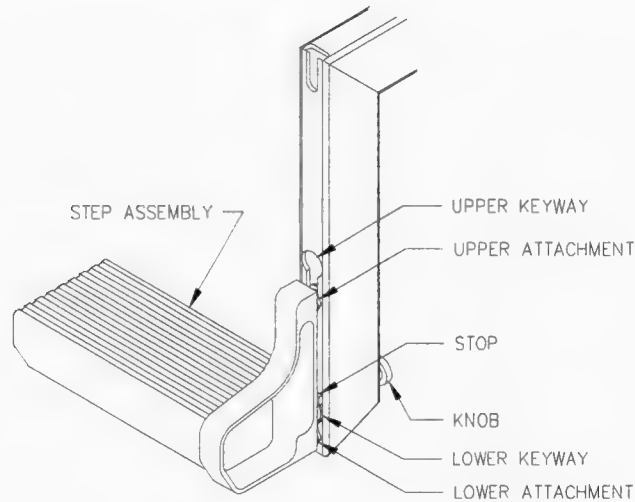


Figure 4 – Step Attachment

3. Step Installation – Refer to Figure 4.
  1. Set upper attachment into upper keyway on forward and aft beams.
  2. Lift step until lower attachment hits stop over keyway. Push fitting into keyway and slid down until locked.
4. Step Removal – Refer to Figure 4.
  1. Pull knob at bottom end of forward beam and lift step until the lower attachment fitting is free of keyway. Keep upper attachment in keyway in beam. Repeat for aft end.
  2. Lift step until upper attachments are out of keyways in beams and remove from helicopter.

## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 698.90

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### QUICK RELEASE CARGO BASKET

#### Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Cargo Basket assembled in accordance with AERO Design Ltd. Document Control List DCL698-1, Revision 0, and DCL698-2, Revision 0, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 1  
Date: 9 November, 2006

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Engineering Consultants

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**RECORD OF REVISIONS**

Revision Number	Issue Date	Date Inserted	By
0			Original Issue

**LIST OF EFFECTIVE PAGES**

List of Revisions

Revision 0 (Original Issue)  
Revision 120 April, 2006  
9 November, 2006

List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	1
Revision Record/List of Effective Pages	2	1
Table of Contents	3	0
00-00-00	4-6	0
04-00-00	7	0
05-00-00	8-9	1
11-00-00	11	0
25-50-00	12-14	1

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## **CHAPTER 0 – INTRODUCTION**

### **0-1 SCOPE**

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Cargo Basket as described herein.

### **0-2 DEFINITIONS AND ABBREVIATIONS**

ICA - Instructions for Continued Airworthiness  
LH - Left Hand  
RH - Right Hand

### **0-3 DISTRIBUTION**

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Cargo Basket. Requests for a copy may be made in writing to:

AERO Design Ltd.  
2013 39<sup>th</sup> Avenue N.E.  
Calgary, Alberta  
T2E 6R7  
Fax: 403-250-8333  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### **0-4 COMPATIBILITY**

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

## 0-5 GENERAL DESCRIPTION

The cargo basket installation is a metal mesh basket installed to the side of the helicopter on beams attached to landing gear fittings with attachment provisions incorporated. The quick release basket allows for the installation and removal of the basket without tools, allowing a pilot operating in the field without maintenance support to install or remove the basket.

The basket itself is 75.75" long, 22.5" wide, and 17" high. It is made of a steel welded tubing structure, and lined with expanded steel mesh. The basket has a hinged lid with a self-locking handle.

The beams are steel tubing which attach to the landing gear fittings and stick out from the side of the helicopter. The quick release mechanism is built into the beams.

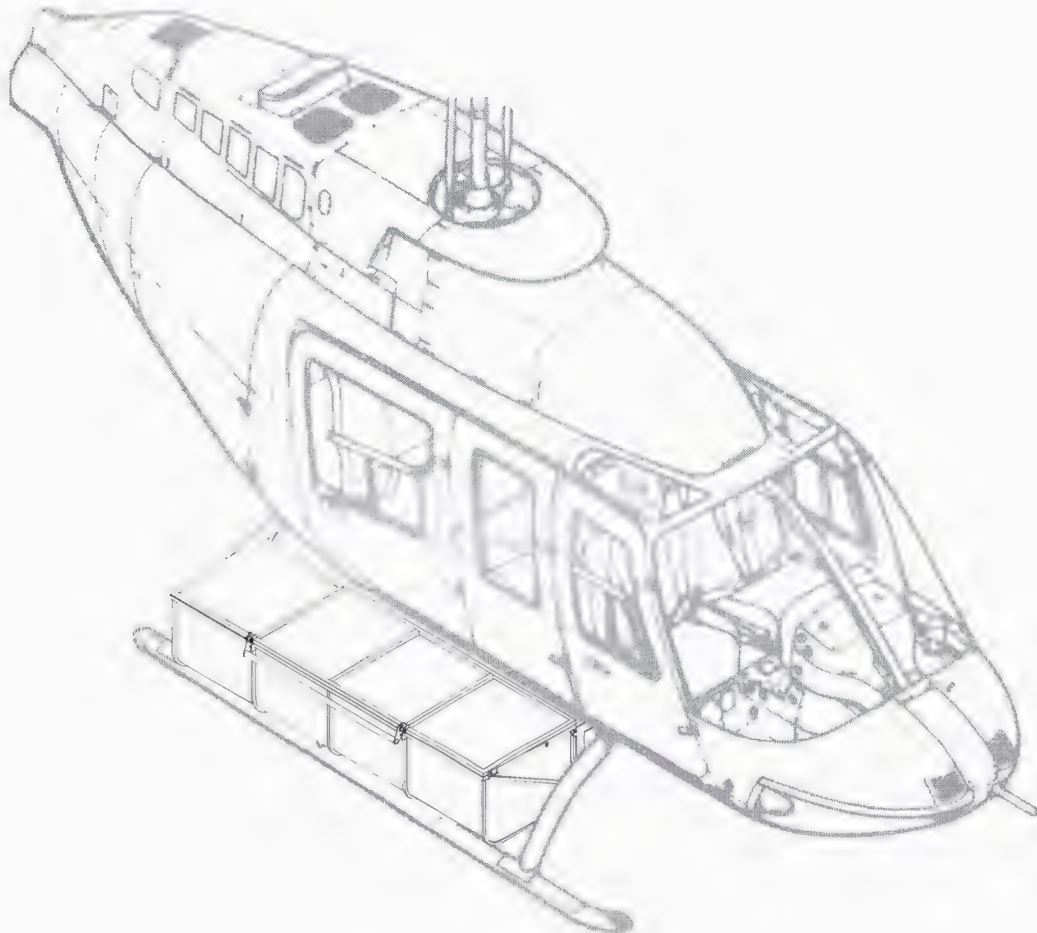


Figure 1 – Cargo Basket Installation



## 0-6 STRUCTURAL PROVISIONS

The External Attachment Provisions are installed on the helicopter in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407). That installation is separate from the basket installation. The External Attachment Provisions are not included in this ICA.

The external attachment provisions consist of replacement landing gear fittings that incorporate a barrel nut for installing equipment. Each fitting is bolted to the lower fuselage and landing gear with the same fasteners as used for the original fittings, as shown in Figure 2.

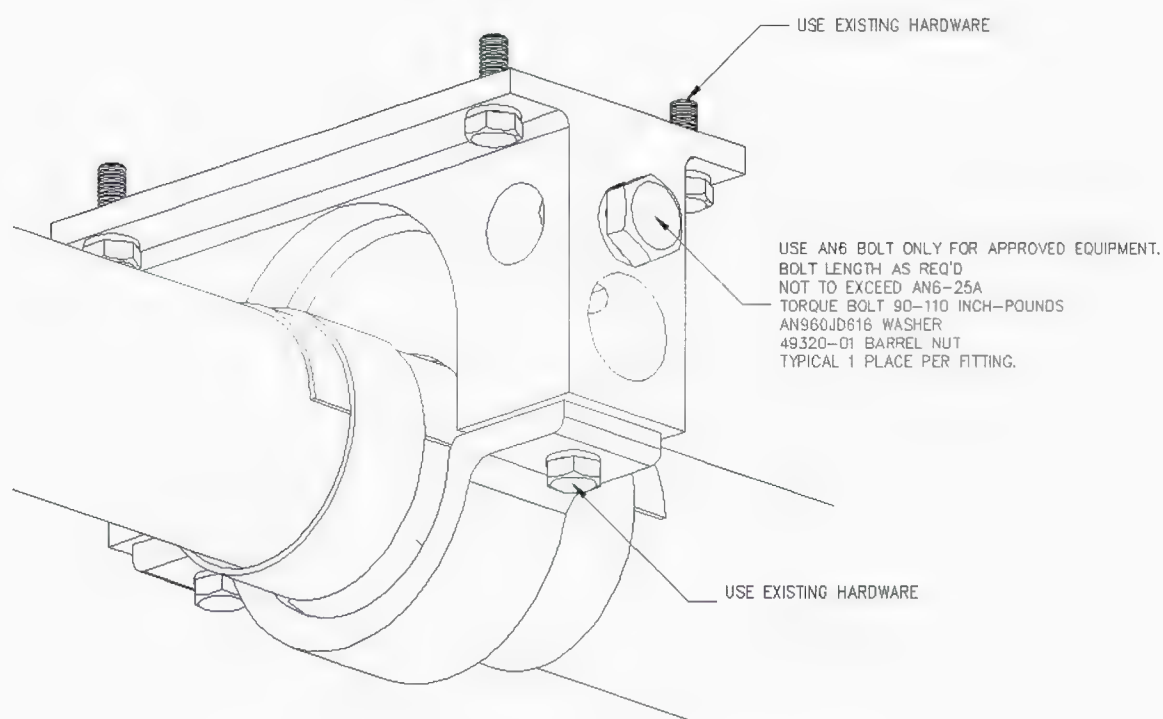


Figure 2 - Installation of External Attachment Provisions

#### **CHAPTER 4 - AIRWORTHINESS LIMITATIONS**

The Airworthiness Limitations section is Transport Canada-approved and specifies maintenance required under Section 571 of the Canadian Aviation Regulations, unless an alternative program has been approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Cargo Basket.

## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Cargo Basket.

#### *Daily Inspection*

1. Inspection Area: Basket
  - a) Inspect the basket attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.
  - b) Inspect latching of the lid for correct operation. If basket is bent inward the lid will close but may not latch.

#### *300 Hour or Annual Inspection*

1. Inspection Area: Basket
  - a) Visually inspect tube-to-tube welds and mesh-to-tube welds for cracks, corrosion or other damage.
  - b) Visually inspect basket mesh for damage.
2. Inspection Area: Beams
  - a) Visually inspect beams attaching basket to the helicopter for cracks, corrosion or other damage.
  - b) Visually inspect lugs attaching the basket to the beams for security and damage.
  - c) Visually inspect bolts attaching beams to external attachment provisions for security and damage.

#### *Special Inspections*

Following a hard landing inspect the Quick Release Cargo Basket installation in accordance with the 300 hour or annual inspection listed above.

## 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

### 1. Basket

- a) Repair Basket in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, as required.
- b) Basket is fabricated from the following materials:
  - Lid and Rim:  $\frac{3}{4}$ " square steel tube
  - Frames:  $\frac{1}{2}$ " square steel tube
  - Mesh:  $\frac{3}{4}$ " 16 ga. (0.040") expanded steel mesh
- c) Touch up with polyurethane paint as required following repairs.

### 2. Beams

DO NOT REPAIR DAMAGE TO BEAMS IF BEYOND THE LIMITS BELOW.

- a) Nicks and/or gouges on the top or bottom face up to 0.030" deep and 0.125" wide may be dressed out to a smooth contour.
- b) Nicks and/or gouges on the side faces up to 0.060" deep and 0.125" wide may be dressed out to a smooth contour.
- c) Maximum depth for slot is shown in Figure 3. Attempt to insert 27/64 drill shank into bottom end of slot. If drill can be inserted, slot is worn beyond limit.



- d) Touch up with polyurethane paint as required following repairs.



### **5-3 PROTECTIVE TREATMENT INFORMATION**

#### **1. Beams**

The beams are supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

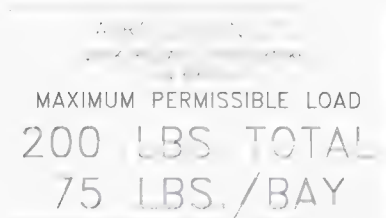
#### **2. Cargo Basket**

The cargo basket is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

## CHAPTER 11 – MARKINGS AND PLACARDS

The following markings and placards are used with the Quick Release Cargo Basket Installation in the locations noted:

- a) Located on basket lid:



- b) Located on top of forward beam: 69830-01  
c) Located on top of aft beam: 69831-01

## CHAPTER 25 – EQUIPMENT AND FURNISHINGS

### SECTION 50 – CARGO COMPARTMENTS

#### 25-1 BEAMS INSTALLATION

Refer to Figure 4.

1. External Attachment Provisions installed in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407) are required prior to installing the Beams.
2. Locate 69830-01 Forward Beam on aft side of Forward Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.
3. Locate 69831-01 Aft Beam on forward side of Aft Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.

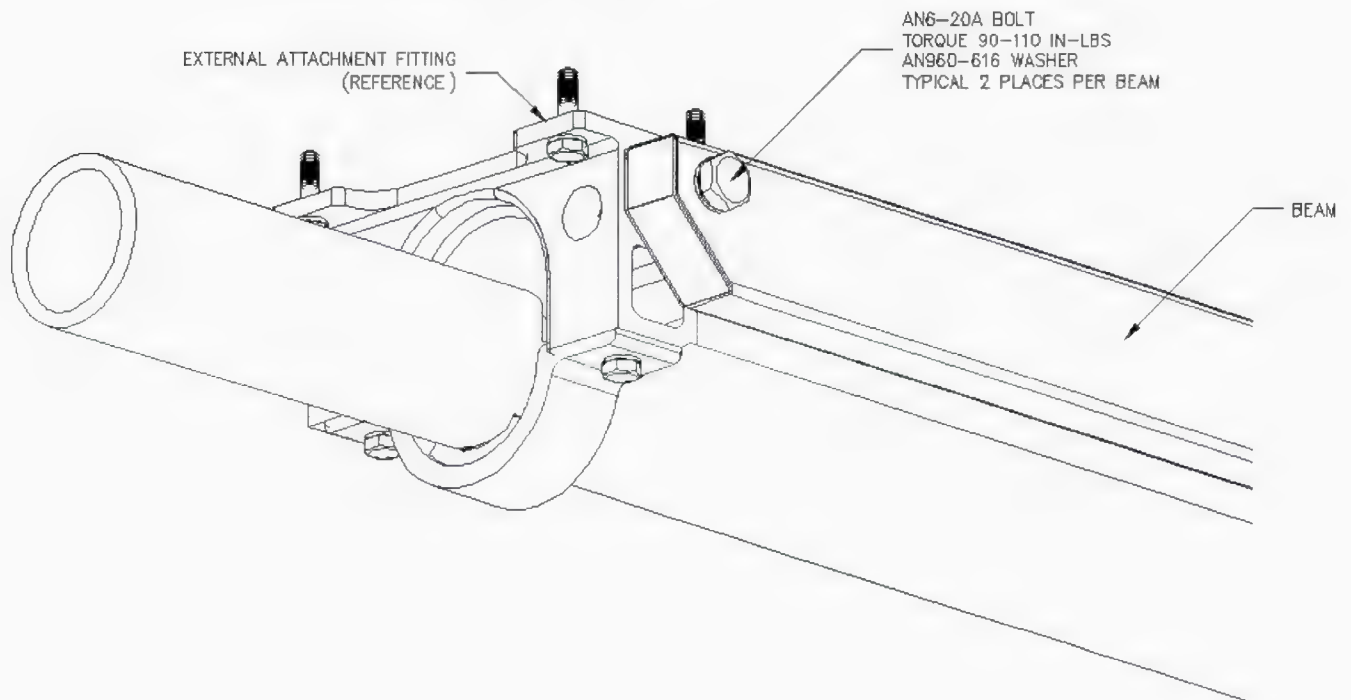


Figure 4 - Beams

#### 25-2 BEAMS REMOVAL

Refer to Figure 4.

1. Remove Cargo Basket. Refer to section 25-4.
2. Remove two AN6-20A Bolt and AN960-616 Washer from 69830-01 Forward Beam. Remove Forward Beam.

3. Remove two AN6-20A Bolt and AN960-616 Washer from 69831-01 Aft Beam. Remove Aft Beam.

### 25-3 BASKET INSTALLATION

Refer to Figure 5.

1. Set basket upper attachment into slot at top of forward and aft beams.
2. At forward end of basket, lift basket until lower attachment fitting hits stop. Push fitting into keyway and slide basket down until locked.
3. Repeat step 2 for aft end.

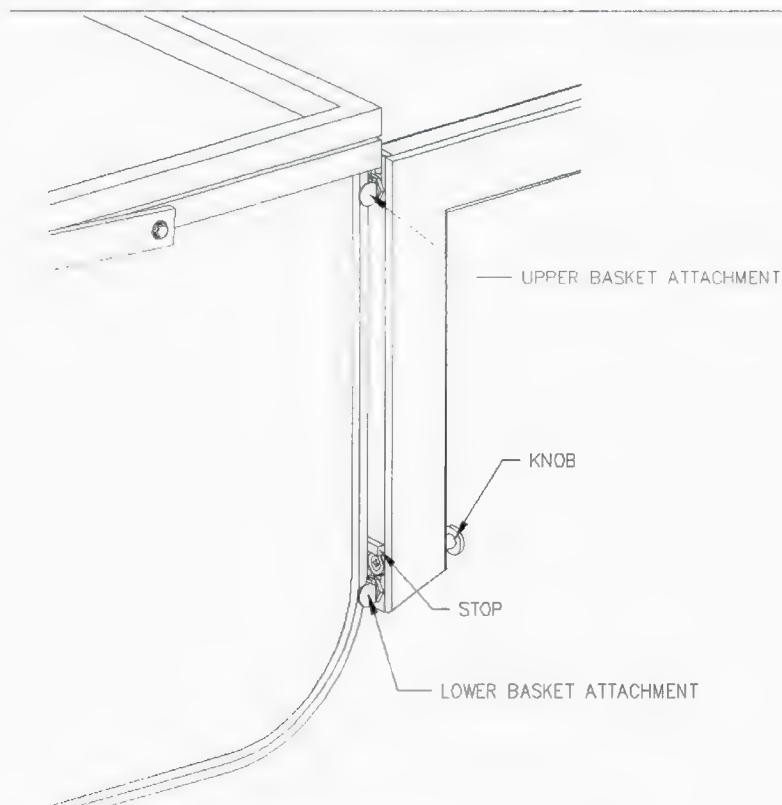


Figure 5 – Basket Attachment

### 25-4 BASKET REMOVAL

Refer to Figure 5.

1. Pull knob at bottom end of forward beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in slot on beam.
2. Pull knob at bottom end of aft beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in slot on beam.
3. Lift basket until upper attachments are out of slots on beams and remove basket from helicopter.



**25-5 WEIGHT AND BALANCE**

Two weight and balance configurations are required for the pilot. The first is the complete installation of Cargo Basket and Beams. The second is Beams only as the basket may be removed in the field by the pilot.


Configuration 1		Weight (lbs)	Longitudinal		Lateral	
Part #	Name		Arm (in)	Moment (in-lbs)	Arm (in)	Moment (in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
69810-01	Cargo Basket	45.0	114.1	5134.5	38.5	1732.5
Total		64.9	113.9	7389.8	30.3	1966.1

Configuration 2		Weight (lbs)	Longitudinal		Lateral	
Part #	Name		Arm (in)	Moment (in-lbs)	Arm (in)	Moment (in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
Total		19.9	113.3	2255.3	11.7	233.6


**25-6 STRUCTURAL FASTENER DATA**

Refer to Bell Standard Practices Manual BHT-ALL-SPM for torque values not listed in this ICA.

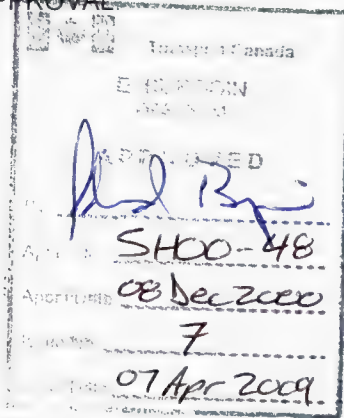
# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
69810	Cargo Basket Assembly	2
69811	Basket Body Assembly	2
69812	Basket Lid Assembly	0
69821	Basket Components - End Hoop	1
69822	Basket Components - Aft Hoop	0
69823	Basket Components - Lugs	0
69824	Basket Components - Rim	0
69825	Basket Components - Spine	0
69826	Basket Components - Strut	0
69827	Basket Components - Placard	0
49210	Basket Components - Hoops	1
49212	Basket Components - Rim	0
49213	Basket Components - Lid Brace	1
49215	Basket Components - Spacer	0
49216	Basket Components - Spacer	0
36255	Handle Assembly	1
36261	Handle Bar Assembly	3
36262	Handle Bracket Assembly	1
36271	Handle Lever	1
36272	Basket Bracket	1
36273	Lid Bracket	1
36274	Bushing	1
36275	Bushing	2
36277	Handle Bar	0
36278	Spring	1
36280, Sheet 1	Brace	2
36280, Sheet 2	Brace	2
<b>ENGINEERING DOCUMENTS</b>		
ER698.01	Engineering Report	0
<b>APPROVAL:</b>		
 <div style="display: flex; justify-content: space-between;"> <span>Transport Canada</span> <span>Transports Canada</span> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p style="text-align: center; margin: 0;"><b>AIRCRAFT CERTIFICATION</b></p> <p style="text-align: center; margin: 0;">DIVISION</p> <p style="text-align: center; margin: 0;"><b>APPROVED</b></p> <p>By <u><i>D. S. [Signature]</i></u></p> <p>Appr'l No. <u>SH00-48</u></p> <p>Appr'l Date <u>00-12-08</u></p> <p>Issue No. <u>6</u></p> <p>Issue Date <u>08-01-30</u></p> <p style="text-align: center; font-size: small;">YY - MM - DD</p> </div>	ORIGINAL DATE: 3 May, 2006	<b>AERO DESIGN LTD.</b> 2013 - 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
	REVISION DATE: 28 September, 2006	
	SHEET 1 OF 1	<b>Quick Release Cargo Basket Assembly</b>
DCL698-1		Rev. <span style="font-size: 2em; font-weight: bold;">1</span>

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
69830 69831	Forward Beam Fabrication Aft Beam Fabrication	3 3
<b>ENGINEERING DOCUMENTS</b>		
ER698.02 TP698.03 ER698.04	Engineering Report Test Plan Engineering Report	0 0 0
<b>APPROVAL:</b>		
 <div style="display: inline-block; vertical-align: top; margin-left: 10px;"> <b>Transport Canada</b>  <b>TRANSPORTS Canada</b> </div> <div style="text-align: center; margin-top: 10px;"> <b>AIRCRAFT CERTIFICATION DIVISION</b>  <b>APPROVED</b>            By <u>[Signature]</u>            App'l No. <u>SHCO-48</u>            App'l Date <u>00-12-08</u>            Issue No. <u>7</u>            Issue Date <u>09-04-07</u>  <small>YY - MM - DD</small> </div>	ORIGINAL DATE: 3 May, 2006  REVISION DATE: 2 December, 2008	<div style="text-align: center;"> <b>AERO DESIGN LTD.</b>            2013 - 39<sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7            Ph. (403) 250-8027            Fax. (403) 250-8333         </div>
	SHEET 1 OF 1	<b>Quick Release Mounting Beams</b>
	<b>DCL698-2</b>	Rev.  <div style="font-size: 24pt;">3</div>

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION						
<b>FABRICATION DOCUMENTS</b>								
70401	Open Forward End Modification (Bell 206L/407 Fixed and McDonnell Douglas MD600N Quick Release Only)	1						
70402	Lid Door Modification	1						
70403	Auxiliary Latch Modification	3						
70404	Open Forward End Modification (Bell 206L/407 Quick Release Only)	1						
70405	Lid Step Modification	2						
70406	Open Forward End Modification (Eurocopter AS350/AS355 and Bell 206B Quick Release Only)	0						
70407	Open Forward End Modification (Eurocopter EC135 Quick Release Only)	0						
70408	Installation, Hanger Wheel	0						
70428	Assembly, Hanger Wheel	0						
70438	Parts, Hanger Wheel	0						
<b>ENGINEERING DOCUMENTS</b>								
ER704.02	Engineering Report	0						
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p><b>APPROVAL:</b></p>  <p>THIS DCL APPROVED 29 Apr 2010</p> </div> <div style="width: 65%;"> <table border="1" style="width: 100%;"> <tr> <td style="width: 30%;"> <p>ORIGINAL DATE: 10 May 2006</p> <p>REVISION DATE: April 29, 2010</p> </td> <td style="width: 70%;"> <p><b>AERO DESIGN LTD.</b> 2013 - 39<sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333</p> </td> </tr> <tr> <td style="width: 30%;"> <p>SHEET 1 OF 1</p> </td> <td style="width: 70%;"> <p><b>Cargo Basket Modifications</b></p> </td> </tr> <tr> <td style="width: 60%; text-align: center;"> <p><b>DCL704</b></p> </td> <td style="width: 40%;"> <p>Rev. <b>6</b></p> </td> </tr> </table> </div> </div>			<p>ORIGINAL DATE: 10 May 2006</p> <p>REVISION DATE: April 29, 2010</p>	<p><b>AERO DESIGN LTD.</b> 2013 - 39<sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333</p>	<p>SHEET 1 OF 1</p>	<p><b>Cargo Basket Modifications</b></p>	<p><b>DCL704</b></p>	<p>Rev. <b>6</b></p>
<p>ORIGINAL DATE: 10 May 2006</p> <p>REVISION DATE: April 29, 2010</p>	<p><b>AERO DESIGN LTD.</b> 2013 - 39<sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333</p>							
<p>SHEET 1 OF 1</p>	<p><b>Cargo Basket Modifications</b></p>							
<p><b>DCL704</b></p>	<p>Rev. <b>6</b></p>							



# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>  62301	Auxiliary Step Installation	1
<b>FABRICATION DOCUMENTS</b>  62320	Step Assembly	2
<b>ENGINEERING DOCUMENTS</b>  ER623.01	Engineering Report	0
<b>APPROVAL:</b>   <p>APPROVED 5400-48 08 DEC 2006 5 09 JUNE 2006 THIS DCL APPROVES 26 SEPT 2006</p>	ORIGINAL DATE: 13 January, 2005  REVISION DATE: 21 September, 2006	<b>AERO DESIGN LTD.</b> 2013 – 39 <sup>th</sup> Ave NE Calgary, Alberta T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
	SHEET 1 OF 1	<b>Bell 206L Series and 407  Auxiliary Step Installation</b>
	<b>DCL623</b>	Rev.  <b>1</b>

## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 623.91

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### BELL 206L SERIES, 407

### AUXILIARY STEP

#### Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Auxiliary Step assembled in accordance with AERO Design Ltd. Document Control List DCL623, Revision 2, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 0  
Date: May 5, 2010

---

AERO Design Ltd.  
Engineering Consultants

2013 – 39<sup>th</sup> Avenue N.E., Calgary, Alberta T2E 6R7  
Phone: (403) 250-8027  
Fax: (403) 250-8333  
E-Mail: [info@aerodesign.ca](mailto:info@aerodesign.ca)

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**RECORD OF REVISIONS**

Revision Number	Issue Date	Date Inserted	By
0	May 5, 2010		Original Issue

**LIST OF EFFECTIVE PAGES**

List of Revisions

Revision 0 (Original Issue) May 5, 2010

## List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	0
Revision Record/List of Effective Pages	2	0
Table of Contents	3	0
00-00-00	4-5	0
04-00-00	6	0
05-00-00	7-8	0
25-50-00	9-10	0

**TABLE OF CONTENTS**

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0-4 COMPATIBILITY	4
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CHAPTER 4 - AIRWORTHINESS LIMITATIONS	6
CHAPTER 5 – INSPECTION REQUIREMENTS	7
5-1 INSPECTION SCHEDULE	7
5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS	7
5-3 PROTECTIVE TREATMENT INFORMATION	8
CHAPTER 25 – EQUIPMENT AND FURNISHINGS	9
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## CHAPTER 0 – INTRODUCTION

### 0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Auxiliary Step as described herein.

### 0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness  
LH - Left Hand  
RH - Right Hand

### 0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Auxiliary Step. Requests for a copy may be made in writing to:

AERO Design Ltd.  
2013 39<sup>th</sup> Avenue N.E.  
Calgary, Alberta  
T2E 6R7  
Fax: 403-250-8333  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### 0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

## 0-5 GENERAL DESCRIPTION

The Auxiliary Step installation (62302-01) consists of a fitting attached to the fwd cross tube with a tube that sticks out fwd from the cross tube. The Auxiliary Step is installed to aid access to the helicopter cabin.

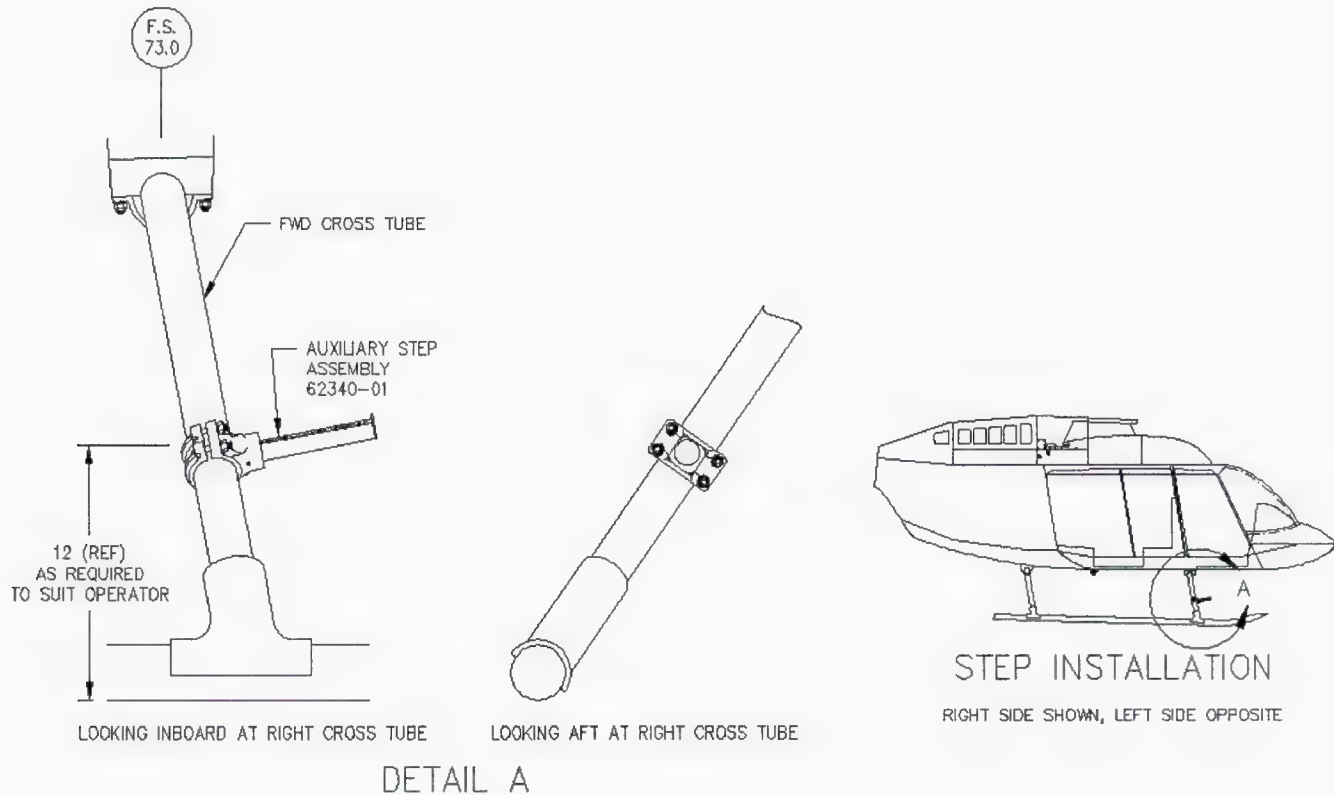


Figure 0-2 – Auxiliary Step Installation

## CHAPTER 4 - AIRWORTHINESS LIMITATIONS

### *Transport Canada*

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

### *FAA*

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Auxiliary Step.

## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Auxiliary Step.

#### *100 Hour or Annual Inspection*

##### 1. Inspection Area: Step

- a) Visually inspect all mounting hardware for condition and security.
- b) Visually inspect step for cracks, corrosion or other damage.
- c) Visually inspect step tube attachment to socket fitting. Step tube must not be loose in socket.

#### *Special Inspections*

1. Following a hard landing inspect the Auxiliary Step installation in accordance with the 100 hour or annual inspection listed above.

### 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

##### 1. Auxiliary Step Assembly 62340

Part	Type of Damage	Max. Allowable	Repair
Step Tube	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks	None	N/A
	Permanent bend	*Note	None
Fitting	Corrosion	0.030" deep	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks	0.060" deep x 0.5" long	Blend up to 0.060" deep with scotchbrite.
	Cracks	None	N/A
	Elongation of socket hole	None	N/A

\*Note: Minor bending of the step tube that does not cause the tube to become loose in the socket is acceptable.



### 5-3 PROTECTIVE TREATMENT INFORMATION

#### 1. Step Assembly

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

## CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Auxiliary Step Installation may be applied to the right and/or left side of the helicopter.

### 25-1 STEP INSTALLATION

1. Locate Step Assembly 62340-01 on fwd cross tube. Fasten one side with AN4-14A Bolts (X2), AN960-416 Washers (X4), and MS21044N4 Nuts (X2); fasten opposite side with FT4F-175H T-Bolt (X2), AN960-416 Washers (X2) and MS21044N4 Nuts (X2). Rotate step until orientated forward. Torque nuts to 50-70 in-lbs.

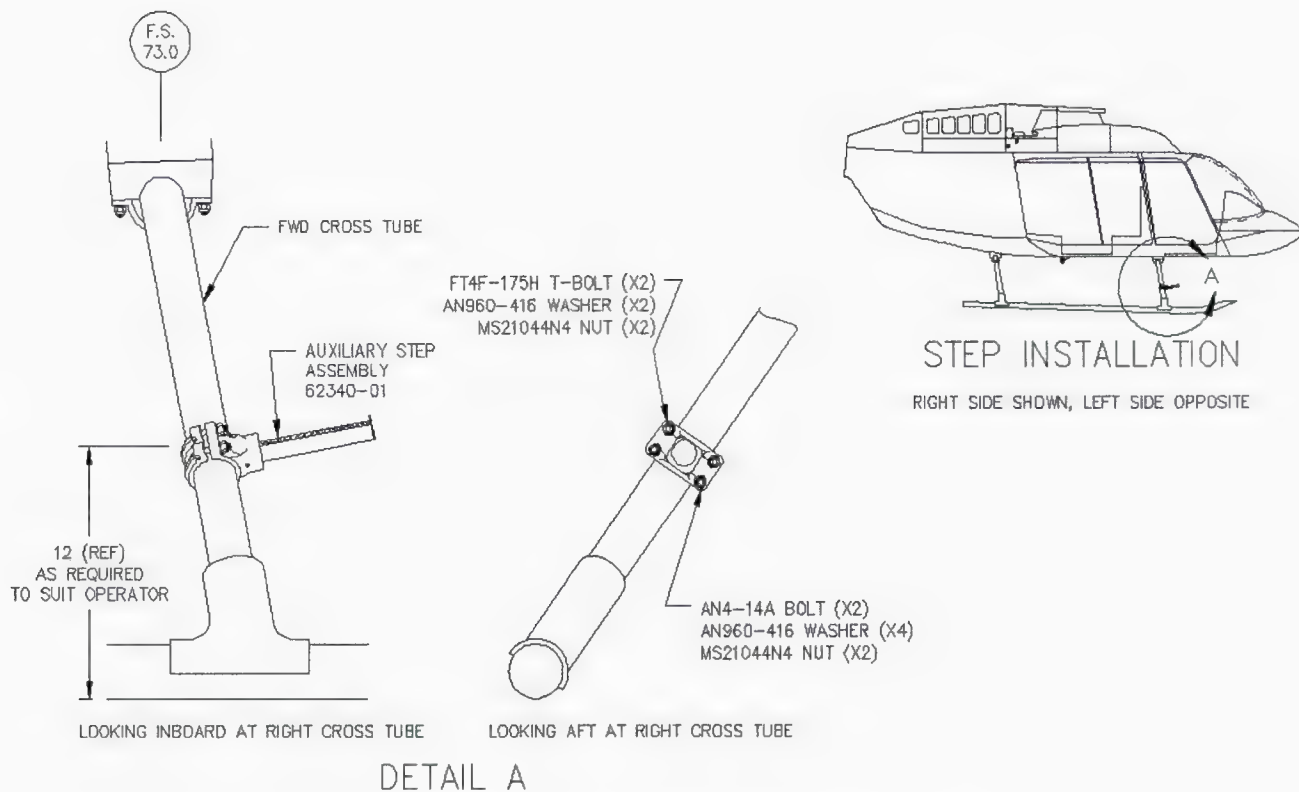


Figure 2 – Auxiliary Step Attachment Details

### 25-2 STEP REMOVAL

Refer to Figure 2.

1. Remove all AN4-14A Bolts, FT4F-175H T-Bolts, AN960-416 Washers, and MS21044N4 Nuts attaching Step Assembly to fwd cross tube. Remove Step Assembly.

**25-3 WEIGHT AND BALANCE****Standard**

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
62302-01	Auxiliary Step Inst'n (Right)	1.0	68.6	68.6	42.1	42.1
62302-01	Auxiliary Step Inst'n (Left)	1.0	68.6	68.6	-42.1	-42.1

**Metric**

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	Moment mm-kg
62302-01	Auxiliary Step Inst'n (Right)	0.45	1742	784	1069	481
62302-01	Auxiliary Step Inst'n (Left)	0.45	1742	784	-1069	-481

**25-4 STRUCTURAL FASTENER DATA**

Refer to Standard Practices Manual for torque values not listed in this ICA.



Transport  
Canada

Transports  
Canada

1100-9700 Jasper Avenue  
Edmonton, Alberta T5J 4E6

Your file      Votre référence

April 14, 2011

Our file      Notre référence  
C-09-0443  
SH00-48

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada, T2E 6R7

**ATTENTION: Edward Burgoin – DAR 290M**

Dear Sirs:

<b>SUBJECT:</b>	<b>Approval of</b>	<b>Installation of Cargo Basket / External Attachment Provisions/Optional Step.</b>
	<b>FAA STC:</b>	<b>SR02253NY</b>
	<b>Aircraft:</b>	<b>Bell 206L, 206L-1, 206L-3, 206L-4, 407</b>
	<b>FAA STC Holder:</b>	<b>Aero Design Ltd.</b>

Enclosed is the original FAA Supplemental Type Certificate SR02253NY and information concerning your responsibility as a holder of a Supplemental Type Certificate issued to a Canadian Applicant.

FAA STC SR02253NY is based on Issue 8 of Canadian STC SH00-48.

Yours truly,

J. Staal  
Aircraft Certification Engineering Technologist  
Prairie and Northern Region  
Phone: 780-495-5227  
Facs: 780-495-7963

Encl.

**NEW ENGLAND REGION  
NEW YORK AIRCRAFT CERTIFICATION OFFICE  
1600 STEWART AVENUE, SUITE 410  
WESTBURY, NEW YORK 11590**

**INFORMATION CONCERNING YOUR RESPONSIBILITY AS HOLDER OF A  
SUPPLEMENTAL TYPE CERTIFICATE ISSUED TO A CANADIAN APPLICANT**

This STC is official indications of FAA approval of your installation and may be used to authorize identical installation on other aircraft of the same model, subject to the limitation noted in the STC. It may be transferred, or otherwise made available to another party by means of a licensee arrangement; however, you are requested to advise this office when you transfer or grant licensee rights to the STC in order that we may take the necessary recording or reissuance action.


If you plan to manufacture and sell parts for installation on type certificated aircraft, please review FAR 21.502, which is applicable to parts imported into the U.S.

A copy of the STC and required documents should accompany each kit and installation. Also, your attention is directed to the limitations and conditions specified in the STC.

As recipient of this approval, except as provided in FAR21.3(d), you are required to report any failure, malfunction, or defect in any product or part manufactured by you that you have determined has resulted or could result in any of the occurrences listed in FAR 21.3(c).

The report should be communicated initially by telephone and subsequently in writing to the Manager, New York Aircraft Certification Office, telephone (516) 228-7300, mailing address: 1600 Stewart Avenue, Suite 410, Westbury, New York 11590. This first contact should take place within 24 hours after it has been determined that the failure required to be reported has occurred.

FAA Form 8010-4, Malfunction or Defect Report, or any other appropriate format is acceptable in transmitting the required details.



Anthony Socias  
Manager,  
New York Aircraft Certification Office



refreshed for

C-09-0443

## MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD698, Rev. 1

<b>1. NAME AND ADDRESS OF APPLICANT:</b>		<b>2. IDENTIFICATION OF PRODUCT</b>				
AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7		MAKE:  Bell Helicopter (Textron)		MODEL:  206L series, 407		
<b>ALL CORRESPONDANCE TO:</b> AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		SERIAL No.:  All eligible		REGISTRATION:  All eligible		
<b>3. REQUEST FOR:</b>						
A. SUPPLEMENTAL TYPE CERTIFICATE (STC)		<input type="checkbox"/>				
B. STC/STA REVISION		<input type="checkbox"/> STC/STA No.				
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)		<input type="checkbox"/>				
D. LIMITED STC/STA REVISION		<input type="checkbox"/> LSTC/LSTA No.				
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE		<input type="checkbox"/>				
F. F.A.A. STC REVISION		<input checked="" type="checkbox"/> STC No. SR02253NY → based on Iss 8				
G. FAMILIARIZATION OF F.A.A. STC		<input type="checkbox"/> STC No.				
H. REPAIR DESIGN APPROVAL (RDC)		<input type="checkbox"/>				
I. PARTS DESIGN APPROVAL (PDA)		<input type="checkbox"/>				
<b>4. TITLE OF MODIFICATION OR REPAIR:</b> Quick Release Cargo Basket Installation						
<b>5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR:</b> Installation of Cargo Basket on side of the helicopter. The mounting provisions are aluminum saddles that replace the landing gear attachment fittings. Support beams for the basket are attached to the fittings. The Cargo Basket can be installed and removed from the beams without tools. This revision incorporates all design changes and revised substantiating data for all models and configurations. See SH00-48 for configurations.						
<b>6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:</b>						
A. TA NO. <u>H-92</u> B. TC No. <u>H2SW</u> C. OTHER _____						
<b>7. PROPOSED BASIS OF APPROVAL:</b>						
A. SAME AS TA <input checked="" type="checkbox"/> B. SAME AS TC <input type="checkbox"/> C. OTHER <input type="checkbox"/> (Please specify) _____						
<b>8. DOCUMENTATION CHECKLIST</b>		<b>REQUIRED</b>		<b>FOR DOT USE ONLY</b>		
		YES	NO	<b>RECEIVED</b>		
				YES	NO	DATE
COMPLIANCE PROGRAM		X		✓		
MASTER DRAWING LIST		X		✓		
FLIGHT MANUAL SUPPLEMENT		X		✓		
MAINTENANCE MANUAL SUPPLEMENT			X			
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS		X		✓		
ENGINEERING REPORTS		X		✓		
DESIGN DRAWINGS			X			
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS		X		✓		
ELECTRICAL LOAD ANALYSIS			X			
DRAFT STC, LSTC OR RDA			X			
WEIGHT AND MOMENT CHANGE		X		✓		
FLIGHT TEST DATA		X				
OTHER (Specify)			X			
<b>9. APPLICANT'S REMARKS:</b> STC based on Transport Canada STC # SH00-48 issue 7						
<b>10.</b> In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4. AERO Design Ltd. PER <u>[Signature]</u> Consultant 22 October, 2010 SIGNATURE OF APPLICANTS TITLE DATE						
<b>11.</b> <u>[Signature]</u> SIGNATURE OF REGIONAL ENGINEER in Charge DATE 1 Nov 2010						

United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

## IMPORT

*Number* SR02253NY

*This certificate issued to* Aero Design Ltd.  
2013-39<sup>th</sup> Avenue NE  
Calgary, Alberta, T2E 6R7  
Canada

*certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.*

*Original Product -- Type Certificate Number:* H2SW

*Make:* Bell Helicopter Textron Canada Limited

*Model:* 206L, 206L-1, 206L-3, 206L-4, 407

*Description of Type Design Change:*

The installation of Cargo Basket, External Attachment Provisions, Auxiliary Step and Quick Release Step for:

I. Bell 407 Only

1. **407 Configuration A-External Attachment Provisions Only:** Installation of External Attachment Provisions to be done in accordance with Aero Design Ltd. Document Control List, DCL 700, Revision 1 dated September 28, 2007, or later Transport Canada approved revision.

(Description of Type Design Change continued on page 2 of 4)

*Limitations and Conditions:*

I. Bell 407 Only

1. **407 Configuration A-External Attachment Provisions Only:**

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 700.91, Revision 0 dated May 4, 2006, Transport Canada approved June 9, 2006, or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 700.90, Revision 0 dated May 3, 2006, Transport Canada accepted June 9, 2006, or later Transport Canada accepted revisions are required for this installation.
- c. External Attachment Provisions installed in accordance with DCL 700 may remain installed if the basket installation is removed.

(Limitations and Conditions continued on page 3 of 4)

*This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.*

*Date of application:* August 9, 2004

*Date reissued:*

*Date of issuance:* April 19, 2006

*Date amended:* April 1, 2011



*By direction of the Administrator*

*[Signature]*  
(Signature)

Anthony Socias  
Manager  
New York Aircraft Certification Office

(Title)

*Description of Type Design Change (Continued):*

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.



United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

(Continuation Sheet)

*Number* SR02253NY

Date of Amendment: April 1, 2011

- I. Bell 407 Only (Continued)
  2. **407 Configuration B-External Cargo Basket Installation (Low Mounted Fixed):** Installation of Configuration A, External Attachment Provisions is a prerequisite for Configuration B, External Cargo Basket Installation. Installation of External Cargo Basket is to be completed in accordance with Transport Canada approved, Aero Design Ltd. Document Control List DCL 606, Revision 3, dated September 28, 2007, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
  3. **407 Configuration C-External Cargo Basket Installation (High Mounted Fixed):** Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 606-1, Revision 1, dated December 13, 2006, or later Transport Canada approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.
  4. **407 Configuration D-External Cargo Basket Installation (Low Mounted Quick Release):** Installation of Configuration A, External Attachment Provisions is a prerequisite for Configuration D, External Cargo Basket Installation. Installation of External Cargo Basket is to be completed in accordance with Transport Canada approved, Aero Design Ltd. Document Control List DCL 701, Revision 3, dated December 2, 2008, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
  5. **407 Configuration E-External Cargo Basket Installation (High Mounted Quick Release):** Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 766-1, Revision 1, dated September 23, 2008, or later Transport Canada approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.
- II. Bell 206L, L-1, L-3, L-4 Only
  1. **206L Series Configuration A-External Attachment Provisions Only:** Installation of External Attachment Provisions to be done in accordance with Transport Canada approved, Aero Design Ltd. Document Control List, DCL 493, Revision 6 dated May 10, 2006, or later Transport Canada approved revision.
  2. **206L Series Configuration B-External Cargo Basket Installation (Low Mounted Fixed):** Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 492, Revision 6, dated September 28, 2007, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
  3. **206L Series Configuration C-External Cargo Basket Installation (Low Mounted Quick Release):** Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 702, Revision 2, dated December 2, 2008, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
  4. **206L Series Configuration D-External Cargo Basket Installation (High Mounted Quick Release):** Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 766-1, Revision 1, dated September 23, 2008, or later Transport Canada approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

(Continuation Sheet)

*Number* SR02253NY

Date of Amendment: April 1, 2011

*Description of Type Design Change* (Continued).

III. All Models (Bell 206L series and 407)

1. **Auxiliary Step Installation:** Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 623, Revision 3, dated November 17, 2010, or later Transport Canada approved revision.
2. **Cargo Basket Modifications:** Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 704, Revision 6, dated April 29, 2010, or later Transport Canada approved revision. Eligibility limitations are noted on the drawings.
3. **Quick Release Step Installation:** Installation of the Low Mounted Quick Release Basket (407-ConfigurationD; 206L-Configuration C) is required prior to the installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 800-2, Revision 0, dated December 2, 2008, or later Transport Canada approved revision.

*Limitations and Conditions* (Continued).

I. Bell 407 Only (Continued)

2. **407 Configuration B-External Cargo Basket Installation (Low Mounted Fixed):**
  - a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 606.01, Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
  - b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 492.90, Revision 1 dated September 28, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.
3. **407 Configuration C-External Cargo Basket Installation (High Mounted Fixed):**
  - a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 606.01, Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
  - b. Aero Design Ltd. Maintenance Instructions MI 606.01, Revision 2 dated July 19, 2004, Transport Canada accepted July 20, 2004 or later Transport Canada accepted revisions are required for this installation.
4. **407 Configuration D-External Cargo Basket Installation (Low Mounted Quick Release):**
  - a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 701.90, Revision 2 dated July 17, 2008, Transport Canada approved April 7, 2009, or later Transport Canada approved revision.
  - b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 698.90, Revision 1 dated November 9, 2006, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.
5. **407 Configuration E-External Cargo Basket Installation (High Mounted Quick Release):**
  - a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 766.91, Revision 0 dated October 30, 2007, Transport Canada approved January 30, 2008, or later Transport Canada approved revision.
  - b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 766.90, Revision 0 dated September 26, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

II. Bell 206L, L-1, L-3, L-4 Only

1. **206L Series Configuration A-External Attachment Provisions Only:**
  - a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 493.01 Revision 0 dated May 19, 2002, Transport Canada approved June 27, 2002 or later Transport Canada approved revision.
  - b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0 dated May 4, 2006, Transport Canada accepted June 9, 2006 or later Transport Canada accepted revisions are required for this installation.
  - c. External Attachment Provisions installed in accordance with DCL 493 may remain installed if the basket installation is removed.

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.



United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

(Continuation Sheet)

*Number* SR02253NY

Date of Amendment: April 1, 2011

*Limitations and Conditions* (Continued):

2. **206L Series Configuration B-External Cargo Basket Installation (Low Mounted Fixed):**

- a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 492.01 Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 492.90, Revision 1 dated September 28, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

3. **206L Series Configuration C-External Cargo Basket Installation (Low Mounted Quick Release):**

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 702.90 Revision 2 dated July 17, 2008, Transport Canada approved April 7, 2009 or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 698.90, Revision 1 dated November 9, 2006, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

4. **206L Series Configuration D-External Cargo Basket Installation (High Mounted Quick Release):**

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 766.92 Revision 0 dated October 30, 2007, Transport Canada approved January 30, 2008 or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 766.90, Revision 0 dated September 26, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

III. All Models (Bell 206L series and 407)

1. **Auxiliary Step Installation:**

- a. The auxiliary step is optional and is not required with installations listed above.
- b. Auxiliary Step installed in accordance with DCL 623 may remain installed if the basket installation is removed.
- c. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 623.91, Revision 0 dated May 5, 2010, Transport Canada accepted November 17, 2010 or later Transport Canada accepted revisions are required for this installation.

2. **Cargo Basket Modifications:** Eligibility limitations are noted on the drawings contained in AERO Design Ltd., Document Control List DCL 704, Revision 6, dated April 29, 2010, or later Transport Canada approved revision.

3. **Quick Release Step Installation:**

- a. The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation.
- b. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.
- c. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2 dated December 2, 2008, Transport Canada accepted April 7, 2009 or later Transport Canada accepted revisions are required for this installation.

IV. The Installer must determine whether this design change is compatible with previously approved modifications.

V. If the holder agrees to permit another person to use the certificate to alter a product, the holder must give the other person written evidence of that permission.

-----END-----

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.



**AERO DESIGN LTD.**2013 - 39<sup>th</sup> Ave N. E., Calgary, Alberta, T2E 6R7

www.aerodesign.ca

Phone: (403) 250-8027, Fax: (403) 250-8333

**F A X C O V E R S H E E T**

DATE: 13 APRIL 2011

TIME:

**FAXED**  
10:35TO: DEAN ELLIOT  
V I H

PHONE:

- 1517

FAX:

(250) 963-9832

FROM: Steven Fahey, CET  
Aero Design Ltd.

PHONE: 403-250-8027

FAX: 403-250-8333

Number of pages including cover sheet: 5

RE: REVISED STC SR 02253NY

DEAN,

WE JUST GOT AN ADVANCE COPY OF  
THE STC THROUGH TRANSPORT & FAA.  
TED SAYS YOU'D APPRECIATE A COPY A.S.A.P.  
I WILL SCAN COPIES OF IT IN THE  
FUTURE WHEN WE HAVE THE ORIGINALS ON  
PAPER. HOPE IT'S HELPFUL

STEVE

**AERO DESIGN LTD.**

2013 - 39<sup>th</sup> Ave N. E., Calgary, Alberta, T2E 6R7

www.aerodesign.ca

Phone: (403) 250-8027, Fax: (403) 250-8333

**F A X C O V E R S H E E T**

DATE: 13 APRIL 2011

TIME:

**FAXED**  
10:30

TO: LARRY LAKE  
HILLSBORO

PHONE: 503-648-2831  
FAX: -1886

FROM: Steven Fahey, CET  
Aero Design Ltd.

PHONE: 403-250-8027  
FAX: 403-250-8333

Number of pages including cover sheet: 5

RE: REVISED STC COPY SRO2253NY

LARRY,

OUR STC IS NOW UPDATED  
WITH ALL CURRENT FEATURES AND  
OPTIONS, FAX-OF-A-FAX-OF-A-FAX-  
HOPE IT IS EASY ENOUGH TO READ.

STEVE

P.S. COPIES WILL COME IN THE MAIL  
IN DUE TIME. WE ALWAYS SCAN  
THEM & MAKE AVAILABLE ON OUR  
WEBSITE.

DEAN  
ELLIOT

EXA



250 963 9834

P. G.

Lelliott Co. V. B. - COM.

United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

IMPORT

Number SR02253NY

This certificate issued to Aero Design Ltd.  
2013-39<sup>th</sup> Avenue NE  
Calgary, Alberta, T2E 6R7  
Canada

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.

Original Product -- Type Certificate Number: H2SW

Maker: Bell Helicopter Textron Canada Limited

Model: 206L, 206L-1, 206L-3, 206L-4, 407

*Description of Type Design Change:*

The installation of Cargo Basket, External Attachment Provisions, Auxiliary Step and Quick Release Step for:

I. Bell 407 Only

1. **407 Configuration A-External Attachment Provisions Only:** Installation of External Attachment Provisions to be done in accordance with Aero Design Ltd. Document Control List, DCL 700, Revision 1 dated September 28, 2007, or later Transport Canada approved revision.

(Description of Type Design Change continued on page 2 of 4)

*Limitations and Conditions:*

I. Bell 407 Only

1. **407 Configuration A-External Attachment Provisions Only:**

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 700.91, Revision 0 dated May 4, 2006, Transport Canada approved June 9, 2006, or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 700.90, Revision 0 dated May 3, 2006, Transport Canada accepted June 9, 2006, or later Transport Canada accepted revisions are required for this installation.
- c. External Attachment Provisions installed in accordance with DCL 700 may remain installed if the basket installation is removed.

(Limitations and Conditions continued on page 3 of 4)

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: August 9, 2004

Date received:

Date of issuance: April 19, 2006

Date amended: April 1, 2011



By direction of the Administrator

*[Signature]*  
(Signature)

Anthony Socias  
Manager  
New York Aircraft Certification Office

(Title)

Description of Type Design Change (Continued):

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

FAA Form 8110-2(10-68) Page 1 of 4

This certificate may be transferred in accordance with FAR 21.47.



United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

(Continuation Sheet)

*Number* SR02253NY

Date of Amendment: April 1, 2011

- I. **Bell 407 Only (Continued)**
  2. **407 Configuration B-External Cargo Basket Installation (Low Mounted Fixed):** Installation of Configuration A, External Attachment Provisions is a prerequisite for Configuration B, External Cargo Basket Installation. Installation of External Cargo Basket is to be completed in accordance with Transport Canada approved, Aero Design Ltd. Document Control List DCL 606, Revision 3, dated September 28, 2007, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
  3. **407 Configuration C-External Cargo Basket Installation (High Mounted Fixed):** Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 606-1, Revision 1, dated December 13, 2006, or later Transport Canada approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.
  4. **407 Configuration D-External Cargo Basket Installation (Low Mounted Quick Release):** Installation of Configuration A, External Attachment Provisions is a prerequisite for Configuration D, External Cargo Basket Installation. Installation of External Cargo Basket is to be completed in accordance with Transport Canada approved, Aero Design Ltd. Document Control List DCL 701, Revision 3, dated December 2, 2008, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
  5. **407 Configuration E-External Cargo Basket Installation (High Mounted Quick Release):** Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 766-1, Revision 1, dated September 23, 2008, or later Transport Canada approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.
- II. **Bell 206L, L-1, L-3, L-4 Only**
  1. **206L Series Configuration A-External Attachment Provisions Only:** Installation of External Attachment Provisions to be done in accordance with Transport Canada approved, Aero Design Ltd. Document Control List, DCL 493, Revision 6 dated May 10, 2006, or later Transport Canada approved revision.
  2. **206L Series Configuration B-External Cargo Basket Installation (Low Mounted Fixed):** Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 492, Revision 6, dated September 28, 2007, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
  3. **206L Series Configuration C-External Cargo Basket Installation (Low Mounted Quick Release):** Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 702, Revision 2, dated December 2, 2008, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
  4. **206L Series Configuration D-External Cargo Basket Installation (High Mounted Quick Release):** Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 766-1, Revision 1, dated September 23, 2008, or later Transport Canada approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

United States of America  
Department of Transportation — Federal Aviation Administration

# Supplemental Type Certificate

(Continuation Sheet)

Number SR02253NY

Date of Amendment: April 1, 2011

*Description of Type Design Change (Continued):*

III. All Models (Bell 206L series and 407)

1. **Auxiliary Step Installation:** Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 623, Revision 3, dated November 17, 2010, or later Transport Canada approved revision.
2. **Cargo Basket Modifications:** Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 704, Revision 6, dated April 29, 2010, or later Transport Canada approved revision. Eligibility limitations are noted on the drawings.
3. **Quick Release Step Installation:** Installation of the Low Mounted Quick Release Basket (407-Configuration D; 206L-Configuration C) is required prior to the installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 800-2, Revision 0, dated December 2, 2008, or later Transport Canada approved revision.

*Limitations and Conditions (Continued):*

I. Bell 407 Only (Continued)

2. **407 Configuration B-External Cargo Basket Installation (Low Mounted Fixed):**
  - a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 606.01, Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
  - b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 492.90, Revision 1 dated September 28, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.
3. **407 Configuration C-External Cargo Basket Installation (High Mounted Fixed):**
  - a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 606.01, Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
  - b. Aero Design Ltd. Maintenance Instructions MI 606.01, Revision 2 dated July 19, 2004, Transport Canada accepted July 20, 2004 or later Transport Canada accepted revisions are required for this installation.
4. **407 Configuration D-External Cargo Basket Installation (Low Mounted Quick Release):**
  - a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 701.90, Revision 2 dated July 17, 2008, Transport Canada approved April 7, 2009, or later Transport Canada approved revision.
  - b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 698.90, Revision 1 dated November 9, 2006, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.
5. **407 Configuration E-External Cargo Basket Installation (High Mounted Quick Release):**
  - a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 766.91, Revision 0 dated October 30, 2007, Transport Canada approved January 30, 2008, or later Transport Canada approved revision.
  - b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 766.90, Revision 0 dated September 26, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

II. Bell 206L, L-1, L-3, L-4 Only

1. **206L Series Configuration A-External Attachment Provisions Only:**

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 493.01 Revision 0 dated May 19, 2002, Transport Canada approved June 27, 2002 or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0 dated May 4, 2006, Transport Canada accepted June 9, 2006 or later Transport Canada accepted revisions are required for this installation.
- c. External Attachment Provisions installed in accordance with DCL 493 may remain installed if the basket installation is removed.

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

FAR Form 0110-2-1(10-69)

Page 3 of 4

This certificate may be transferred in accordance with FAR 21.47.



United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

(Continuation Sheet)

*Number* SR02253NY

Date of Amendment: April 1, 2011

*Limitations and Conditions (Continued).*

2. **206L Series Configuration B-External Cargo Basket Installation (Low Mounted Fixed):**
    - a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 492.01 Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
    - b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness: ICA 492.90, Revision 1 dated September 28, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.
  3. **206L Series Configuration C-External Cargo Basket Installation (Low Mounted Quick Release):**
    - a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 702.90 Revision 2 dated July 17, 2008, Transport Canada approved April 7, 2009 or later Transport Canada approved revision.
    - b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness: ICA 698.90, Revision 1 dated November 9, 2006, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.
  4. **206L Series Configuration D-External Cargo Basket Installation (High Mounted Quick Release):**
    - a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 766.92 Revision 0 dated October 30, 2007, Transport Canada approved January 30, 2008 or later Transport Canada approved revision.
    - b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness: ICA 766.90, Revision 0 dated September 26, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.
- III. All Models (Bell 206L series and 407)
1. **Auxiliary Step Installation:**
    - a. The auxiliary step is optional and is not required with installations listed above.
    - b. Auxiliary Step installed in accordance with DCL 623 may remain installed if the basket installation is removed.
    - c. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness: ICA 623.91, Revision 0 dated May 5, 2010, Transport Canada accepted November 17, 2010 or later Transport Canada accepted revisions are required for this installation.
  2. **Cargo Basket Modifications:** Eligibility limitations are noted on the drawings contained in AERO Design Ltd., Document Control List DCL 704, Revision 6, dated April 29, 2010, or later Transport Canada approved revision.
  3. **Quick Release Step Installation:**
    - a. The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation.
    - b. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.
    - c. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness: ICA 800.90, Revision 2 dated December 2, 2008, Transport Canada accepted April 7, 2009 or later Transport Canada accepted revisions are required for this installation.
- IV. The Installer must determine whether this design change is compatible with previously approved modifications.
- V. If the holder agrees to permit another person to use the certificate to alter a product, the holder must give the other person written evidence of that permission.

END

NEW ENGLAND REGION  
NEW YORK AIRCRAFT CERTIFICATION OFFICE  
1600 STEWART AVENUE, SUITE 410  
WESTBURY, NEW YORK 11590

**INFORMATION CONCERNING YOUR RESPONSIBILITY AS HOLDER OF A  
SUPPLEMENTAL TYPE CERTIFICATE ISSUED TO A CANADIAN APPLICANT**

This STC is official indications of FAA approval of your installation and may be used to authorize identical installation on other aircraft of the same model, subject to the limitation noted in the STC. It may be transferred, or otherwise made available to another party by means of a licensee arrangement; however, you are requested to advise this office when you transfer or grant licensee rights to the STC in order that we may take the necessary recording or reissuance action.

If you plan to manufacture and sell parts for installation on type certificated aircraft, please review FAR 21.502, which is applicable to parts imported into the U.S.

A copy of the STC and required documents should accompany each kit and installation. Also, your attention is directed to the limitations and conditions specified in the STC.

As recipient of this approval, except as provided in FAR21.3(d), you are required to report any failure, malfunction, or defect in any product or part manufactured by you that you have determined has resulted or could result in any of the occurrences listed in FAR 21.3(c).

The report should be communicated initially by telephone and subsequently in writing to the Manager, New York Aircraft Certification Office, telephone (516) 228-7300, mailing address: 1600 Stewart Avenue, Suite 410, Westbury, New York 11590. This first contact should take place within 24 hours after it has been determined that the failure required to be reported has occurred.

FAA Form 8010-4, Malfunction or Defect Report, or any other appropriate format is acceptable in transmitting the required details.



Anthony Socias  
Manager,  
New York Aircraft Certification Office



VIA

PRINCE GEORGE  
DEAN (250) 963-1517

---

HILLSBORO FAX (503) 648-1886

LARRY LAKE PHN (503) 648-2831

~~CHRIS~~

**Jeff Clarke**

**From:** Rafael Caceres [rcaceresr@dgac.cl]  
**Sent:** July 27, 2010 11:13 AM  
**To:** Jeff Clarke  
**Subject:** Re: Bell 407 Cargo Basket Documents

Dear Jeff.

Many thanks for your information.

Best regard.

Rafael Caceres

Direccion General de Aeronautica Civil Chile

Subdepartamento de Aeronavegabilidad

Seccion Ingenieria

Avenida Miguel Claro 1314

Providencia Santiago Chiel

----- Original Message -----

**From:** Jeff Clarke

**To:** rcaceresr@dgac.cl

**Sent:** Tuesday, July 27, 2010 1:04 PM

**Subject:** Bell 407 Cargo Basket Documents

Mr. Caceres,

Is the information you require for Bell 407, registration CC-ABK?

The configurations supplied for CC-ABK is Bell 407 Configuration A – External Attachment Provisions and Bell 407 Configuration D – Low Mounted Quick Release Basket FMS606.01, Rev. 2 does not apply to the configurations supplied for CC-ABK.

Attached is SI 698.91 as requested.

If you have any further questions please contact me.

Regards,

Jeff Clarke, CET

AERO Design Ltd.

2013 39th Avneue NE

Calgary, Alberta, Canada

T2E 6R7

Phone: 403.250.8027

Fax: 403.250.8333

27/07/2010

From: "Rafael Caceres" <rcaceresr@dgac.cl>  
To: <info@aerodesign.ca>  
Subject: Website Visitor Inquiry

**Sent:** Tue  
**Priority:** Normal

Dear Sir

Please remit information Relative with Installation " External Cargo Basket"( Low mounted Fixed) for Helicopter model 407, reference in FMS 606.01, rev.2 dated 28 Sept.2007.

Best regadr  
Rafael Caceres  
CAA- Direccion General de Aeronautica Civil Chile  
Subdepartamento de Aeronavegabilidad  
Seccion Ingenieria  
Avenida Miguel Clarop 1314 Providencia Santiago Chile  
Fono 562-4392654

From: "Rafael Caceres" <rcaceresr@dgac.cl> - Website Visitor Inquiry

From: "Rafael Caceres" <rcaceresr@dgac.cl>  
To: <info@aerodesign.ca>  
Subject: Fw: Website Visitor Inquiry

**Sent:** Tue  
**Priority:** Normal

Dear Sir  
Please remit Service Instructions number 698-91.-

Best regadr  
Rafael Caceres  
CAA- Direccion General de Aeronautica Civil Chile  
Subdepartamento de Aeronavegabilidad  
Seccion Ingenieria  
Avenida Miguel Clarop 1314 Providencia Santiago Chile  
Fono 562-4392654

From: "Rafael Caceres" <rcaceresr@dgac.cl> - Fw: Website Visitor Inquiry



**Steven Fahey**

**From:** "Staal, Jack" <STAALJ@tc.gc.ca>  
**To:** <steve@aerodesign.ca>; <ted@aerodesign.ca>  
**Sent:** Thursday, March 17, 2011 8:54 AM  
**Subject:** FW: Project SA6339NY-R, STCSR02253NY  
 FYI

If you need the MSI's I have them here.

Jack

---

**From:** Stephen.Kowalski@faa.gov [mailto:Stephen.Kowalski@faa.gov]  
**Sent:** Thursday, March 17, 2011 10:09 AM  
**To:** Staal, Jack  
**Subject:** Fw: Project SA6339NY-R, STCSR02253NY

Jack: Please ask the applicant to mail me hard copies of the following:

- Compliance Checklist(s)
- Design Data, Master Document List(s) is sufficient
- Flight Manual Supplements
- ICA(s)
- MSI 53(s)



I had most of this information, before the project was cancelled. Unfortunately the files were sent to the records center and cannot be easily accessed. Otherwise, the STC just needs to get the latest dates added and will be ready to go.

Thanks,  
 Steve Kowalski, P.E.  
 AVS Engineer  
 Airframe  
 FAA NYACO  
 1600 Stewart Avenue, Suite 410  
 Westbury, NY 11590  
 (516) 228-7327

----- Forwarded by Stephen Kowalski/AEA/FAA on 03/17/2011 10:50 AM -----

**From:** Stephen Kowalski/AEA/FAA  
**To:** "Staal, Jack" <STAALJ@tc.gc.ca>  
**Date:** 03/17/2011 09:31 AM  
**Subject:** Project SA6339NY-R, STCSR02253NY

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[attachment "SR02253NY\_AmendDraft.pdf" deleted by Stephen Kowalski/AEA/FAA]

Jack:

Ask the applicant to review this amendment draft. There's a lot going on in this STC, ask them to verify this is what they are looking for, 'should probably be separate STC's. Also, I eliminated the AML, all the models are on the same TCDS, so the AML is not appropriate for this case.

3/17/2011

**Steven Fahey**

---

**From:** "Steven Fahey" <steve@aerodesign.ca>  
**To:** "Jack Staal" <jack.staal@tc.gc.ca>  
**Sent:** Monday, November 08, 2010 10:43 AM  
**Attach:** Application\_TCCA\_STC\_Rev.pdf; Bell Cargo Basket Configuration Matrix.pdf  
**Subject:** Update to TCCA STC 00-48 (Cargo Baskets)  
Jack,

So as we discussed, since SH00-48 is going to be updated to Issue 8, it ought to have all of the up-to-date revisions of documents shown. So here is an application form for that purpose.

I've attached a copy of the documents matrix; hope it helps. On the first page, I've noted at the bottom the documents that have later revisions than those shown on Issue 7.

Steven Fahey  
[steve@aerodesign.ca](mailto:steve@aerodesign.ca)  
Aero Design Ltd.  
2013 - 39th Avenue NE  
Calgary, Alberta, Canada  
T2E 6R7  
tel: (403) 250-8027  
fax: (403) 250-8333  
[www.aerodesign.ca](http://www.aerodesign.ca)

8 November, 2010

Transport Canada  
Aircraft Certification Division  
11<sup>th</sup> Floor, Canada Place  
9700 Jasper Avenue  
Edmonton, Alberta  
T5J 4E6

Attn: Jack Staal

Your File : SH00-48

Our File : 698

Re: Revision to SH00-48

Jack,

Please find attached the following documents related to this project:

Modification Approval Request Application Form

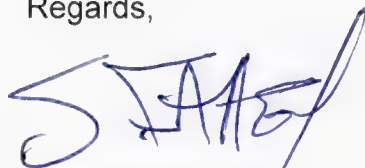
MOD698

Rev. 2

As we discussed earlier on the phone, since we are committed to using Issue 8 of our STC, we should make it reflect all of the most current documents and revisions thereof.

Since I provided you with a matrix of documents and their revision levels with the FAA applications, you may already have what you need to sort this out. If some questions remain, of course I'm here to assist.

Regards,




Steven Fahey, CET

Encl.

MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD698, Rev. 2

1. NAME AND ADDRESS OF APPLICANT:		2. IDENTIFICATION OF PRODUCT				
AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7		MAKE:  Bell Helicopter (Textron)	MODEL:  206L series, 407			
ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		SERIAL No.:  All eligible	REGISTRATION:  All eligible			
3. REQUEST FOR:						
A. SUPPLEMENTAL TYPE CERTIFICATE (STC)		<input type="checkbox"/>				
B. STC/STA REVISION		<input checked="" type="checkbox"/> STC/STA No. SH00-48				
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)		<input type="checkbox"/>				
D. LIMITED STC/STA REVISION		<input type="checkbox"/> LSTC/LSTA No.				
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE		<input type="checkbox"/>				
F. F.A.A. STC REVISION		<input type="checkbox"/> STC No.				
G. FAMILIARIZATION OF F.A.A. STC		<input type="checkbox"/> STC No.				
H. REPAIR DESIGN APPROVAL (RDC)		<input type="checkbox"/>				
I. PARTS DESIGN APPROVAL (PDA)		<input type="checkbox"/>				
4. TITLE OF MODIFICATION OR REPAIR: Quick Release Cargo Basket Installation						
5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR: Update approved data to most current revisions.						
6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:						
A. TA NO. H-92      B. TC No. H2SW      C. OTHER						
7. PROPOSED BASIS OF APPROVAL:						
A. SAME AS TA <input checked="" type="checkbox"/> B. SAME AS TC <input type="checkbox"/> C. OTHER <input type="checkbox"/> (Please specify)						
8. DOCUMENTATION CHECKLIST		REQUIRED		FOR DOT USE ONLY		
		YES	NO	RECEIVED		
		YES	NO	YES	NO	DATE
COMPLIANCE PROGRAM		X				
MASTER DRAWING LIST		X				
FLIGHT MANUAL SUPPLEMENT		X				
MAINTENANCE MANUAL SUPPLEMENT			X			
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS		X				
ENGINEERING REPORTS		X				
DESIGN DRAWINGS			X			
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS		X				
ELECTRICAL LOAD ANALYSIS			X			
DRAFT STC, LSTC OR RDA			X			
WEIGHT AND MOMENT CHANGE		X				
FLIGHT TEST DATA		X				
OTHER (Specify)			X			
9. APPLICANT'S REMARKS: STC based on Transport Canada STC # SH00-48 issue 7						
10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4.						
AERO Design Ltd.						
PER: 		Consultant		8 November, 2010		
SIGNATURE OF APPLICANTS		TITLE		DATE		
11.						
SIGNATURE OF REGIONAL ENGINEER				DATE		



Department of Transport

# Supplemental Type Certificate

This approval is issued to:

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada T2E 6R7

Number: SH00-48

Issue No.: 8

Approval Date: December 08, 2000

Issue Date: November 02, 2010

Responsible Office:

Prairie and Northern

Aircraft/Engine Type or Model:

BELL 206L, 206L-1, 206L-3, 206L-4, 407

Canadian Type Certificate or Equivalent:

BELL 206L, 206L-1, 206L-3, 206L-4, 407 H-92

Description of Type Design Change:

Installation of Cargo Basket / External Attachment  
Provisions / Auxiliary step / Quick Release Step

Installation/Operating Data,  
Required Equipment and Limitations:

**Bell 407 only:**

**407 Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 20 April 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)



**Conditions:** This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the modified product.

D.S. Austen  
For Minister of Transport

Canada





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**Bell 407 only: (Continued)**

**407 Configuration B - External Cargo Basket (Low Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**Bell 407 only: (Continued)**

**407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):**

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 3, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 407 Configuration E - External Cargo Basket Installation High Mounted Quick Release**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 206L, L-1, L-3, L-4 only:**

**206L Series Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**206L Series Configuration B - External Cargo Basket (Low Mounted):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

**206L Series Configuration C - External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 2, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

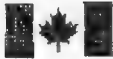
Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**206L Series Configuration D - External Cargo Basket Installation (High Mounted Quick Release):**

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push-out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada accepted, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

**All Models (Bell 206L series and 407)**

**Auxiliary Step Installation:**

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 January 2005, or later approved revision.

The auxiliary step is optional and is not required with installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 7)





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**All Models (Bell 206L series and 407)**

**Cargo Basket Modifications:**

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

**Quick Release Step Installation:**

Installation of the Low Mounted Quick Release Cargo Basket (407 - Configuration D; 206L - Configuration C) is required prior to installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List DCL800-2, Rev. 0, dated 2 December 2008, or later approved revision.

The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2, dated 2 December 2008, or later accepted revision, is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27, amendment 27-30.

- End -



Department of Transport

# Supplemental Type Certificate

**This approval is issued to:**

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada T2E 6R7

**Number:** SH00-48

**Issue No.:** 7

**Approval Date:** December 08, 2000

**Issue Date:** April 07, 2009

**Responsible Office:**

Prairie and Northern

**Aircraft/Engine Type or Model:**

BELL 206L, 206L-1, 206L-3, 206L-4, 407

**Canadian Type Certificate or Equivalent:**

BELL 206L, 206L-1, 206L-3, 206L-4, 407 H-92

**Description of Type Design Change:**

Installation of Cargo Basket / External Attachment  
Provisions/Auxiliary step./Quick Release Step

**Installation/Operating Data,  
Required Equipment and Limitations:**

**Bell 407 only:**

**407 Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 3 May 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)

**Conditions:** This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.



R.A. Goossens  
For Minister of Transport

## TRANSFER ENDORSEMENT

A transfer of ownership requires a prior approval from the Minister.

The reissue of the certificate in the name of the transferee will be contingent upon a demonstration made by the new owner that he/she can fulfill the responsibilities of the holder as described in airworthiness manual chapter 513.

### TRANSFER OF OWNERSHIP

TO (NAME AND ADDRESS OF TRANSFeree)

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FROM (NAME AND ADDRESS OF OWNER)

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TRANSFER PARTICULARS (LICENCE  
AGREEMENT, SALE OF RIGHTS, ETC.)

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DATE OF TRANSFER

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SIGNATURE  
(OF ORIGINAL OWNER)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**Bell 407 only:** (Continued)

**407 Configuration B - External Cargo Basket (Low Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN

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**Bell 407 only:** (Continued)

**407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):**

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 3, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 407 Configuration E - External Cargo Basket Installation High Mounted Quick Release**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 206L, L-1, L-3, L-4 only:**

**206L Series Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**206L Series Configuration B – External Cargo Basket (Low Mounted):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

**206L Series Configuration C – External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 2, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**206L Series Configuration D – External Cargo Basket Installation (High Mounted Quick Release):**

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit “push-out” windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada accepted, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

**All Models (Bell 206L series and 407)**

**Auxiliary Step Installation:**

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 January 2005, or later approved revision.

The auxiliary step is optional and is not required with installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 7)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**All Models (Bell 206L series and 407)**

**Cargo Basket Modifications:**

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

**Quick Release Step Installation:**

Installation of the Low Mounted Quick Release Cargo Basket (407 - Configuration D; 206L - Configuration C) is required prior to installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List DCL800-2, Rev. 0, dated 2 December 2008, or later approved revision.

The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2, dated 2 December 2008, or later accepted revision, is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27, amendment 27-30.

— End —





Transport  
Canada

Transports  
Canada

1100-9700 Jasper Avenue  
Edmonton, Alberta T5J 4E6

Your file      Votre référence

November 23, 2010

Our file      Notre référence

C-10-0941

SH00-48

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada, T2E 6R7

Dear Sirs:

**SUBJECT:      REVISION TO SUPPLEMENTAL TYPE CERTIFICATE NO. SH00-48 – ISSUE 8  
DATED NOVEMBER 22, 2010 – INSTALLATION OF CARGO BASKET /  
EXTERNAL ATTACHMENT PROVISIONS / AUXILIARY STEP / QUICK  
RELEASE STEP – BELL 206L, 206L-1, 206L-3, 206L-4, 407 ISSUED TO AERO  
DESIGN LTD.**

This Supplemental Type Certificate (STC) is issued in response to your application. Included with the STC are documents bearing the original Transport Canada signatures.

The transfer of these documents in the name of another person requires a prior approval from the Minister in accordance with Canadian Aviation Regulations (CAR) 521.357.

To accomplish this modification, the requirements of CAR 561 apply if parts are manufactured.

Embodiment of this modification is considered to be a maintenance activity and the requirements of CAR 571.06(4) will apply.

An STC holder is required to report any service problem experienced with their product. Therefore, should you become aware of any defect, malfunction or failure resulting from the design change, it is your responsibility to submit a Service Difficulty Report to Transport Canada in accordance with CAR Part V, Subpart 91. Other Obligations as a Design Approval Document Holder are contained in CAR 521, Division VIII.

Yours truly,

J. Staal  
Aircraft Certification Engineering Technologist  
Prairie and Northern Region  
Phone: 780-495-5227  
Facs: 780-495-7963

Encl.

## APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

## BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Auxiliary Step on Bell 206L Series & 407
Certification Basis of design change and revision date:	FAR 27, Amendment 27-30
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 623.91)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 62302

## BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.2 (a) Manual(s)</b> (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Bell 206L Series/407Maintenance Manuals BHT-206L-MM, BHT-407-MM	Supplemental ICA ref: Single Manual (ICA827.93)
<b>A527.2 (b) Practical arrangement</b> (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Bell 206L Series/407Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (a) Rotorcraft maintenance manual or section</b>		
<b>A527.3 (a) (1) (Introduction)</b> (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Bell 206L Series/407Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-1
<b>A527.3 (a) (2) (Description)</b> (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Bell 206L Series/407Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-5

# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (a) (3) Control &amp; Operation</b> (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (a) (4) Servicing</b> (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Bell 206L Series/ 407Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (b) Maintenance Instructions.</b>		
<b>A527.3 (b) (1) Scheduling</b> 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Bell 206L Series/ 407Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
<b>A527.3 (b) (2) Troubleshooting</b> (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

**MSI 53 – Review of Supplemental Instructions for Continued Airworthiness**

<b>Regulatory Standard Reference Column 1</b>	<b>Design Approval Holder (DAH) ICA Reference Column 2</b>	<b>Applicant Means of Compliance Supplemental ICA Requirements Column 3</b>
<b>A527.3 (b) (3) Removal/replacement</b> (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Bell 206L Series/ 407Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2
<b>A527.3 (b) (4) General</b> (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Bell 206L Series/ 407Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
<b>A527.3 (c) Access</b> (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (d) Special inspections</b> (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Bell 206L Series/407Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
<b>A527.3 (e) Protective treatment</b> (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 3 & 4	Supplemental ICA ref: Section 5-3
<b>A527.3 (f) Fasteners, torque values, etc</b> (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 2	Supplemental ICA ref: Section 25-4
<b>A527.3 (g) Special tools</b> (g) A list of special tools needed.	ICA ref: N/A	Supplemental ICA ref: N/A



## MSI 53 – Review of Supplemental Instructions for Continued Airworthiness


### BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

<p><b>A527.4 AWL - Separate Section 1</b></p> <p>The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."</p>	<p>ICA ref: Bell 206L Series/407Maintenance Manual, Chapter 4</p>	<p>Supplemental ICA ref: Section 4</p> <p style="text-align: right;">✓</p>
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## BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

Applicants Signature:  Date: May 5, 2010

Applicants Name: E. Burgoin, P.Eng, DAR 290M

## BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: J. STAAL Phone # 780-495-5227 Email: Jack.staal@tc.gc.ca Mail Routing Symbol: RAED

Signature: J. Staal Date: 17 Nov 2010 NAPA Number C-10-0941  
(C-09-0443 also)

MODIFICATION APPROVAL REQUEST APPLICATION FORM				MOD698, Rev. 2		
1. NAME AND ADDRESS OF APPLICANT: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7		2. IDENTIFICATION OF PRODUCT				
ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		MAKE: Bell Helicopter (Textron)		MODEL: 206L series, 407		
		SERIAL No: All eligible		REGISTRATION: All eligible		
3. REQUEST FOR:						
A. SUPPLEMENTAL TYPE CERTIFICATE (STC)		<input type="checkbox"/>				
B. STC/STA REVISION		<input checked="" type="checkbox"/> STC/STA No. SH00-48				
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)		<input type="checkbox"/>				
D. LIMITED STC/STA REVISION		<input type="checkbox"/> LSTC/LSTA No.				
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE		<input type="checkbox"/>				
F. F.A.A. STC REVISION		<input type="checkbox"/> STC No.				
G. FAMILIARIZATION OF F.A.A. STC		<input type="checkbox"/> STC No.				
H. REPAIR DESIGN APPROVAL (RDC)		<input type="checkbox"/>				
I. PARTS DESIGN APPROVAL (PDA)		<input type="checkbox"/>				
4. TITLE OF MODIFICATION OR REPAIR: Quick Release Cargo Basket Installation						
5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR: Update approved data to most current revisions.						
6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:						
A. TA NO. H-92		B. TC No. H2SW		C. OTHER		
7. PROPOSED BASIS OF APPROVAL:						
A. SAME AS TA <input checked="" type="checkbox"/>		B. SAME AS TC <input type="checkbox"/>		C. OTHER <input type="checkbox"/> (Please specify)		
8. DOCUMENTATION CHECKLIST			REQUIRED		FOR DOT USE ONLY	
					RECEIVED	
			YES NO		YES NO DATE	
COMPLIANCE PROGRAM			X			
MASTER DRAWING LIST			X			
FLIGHT MANUAL SUPPLEMENT			X			
MAINTENANCE MANUAL SUPPLEMENT					X	
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS			X			
ENGINEERING REPORTS			X			
DESIGN DRAWINGS					X	
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS			X			
ELECTRICAL LOAD ANALYSIS					X	
DRAFT STC, LSTC OR RDA					X	
WEIGHT AND MOMENT CHANGE			X			
FLIGHT TEST DATA			X			
OTHER (Specify)					X	
9. APPLICANT'S REMARKS: STC based on Transport Canada STC # SH00-48 issue 7						
10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4.						
AERO Design Ltd.		PER:		Consultant		
SIGNATURE OF APPLICANTS		TITLE		8 November, 2010		
DATE						
11.  in Tech.						
SIGNATURE OF REGIONAL ENGINEER				17 Nov 2010.		
DATE				DATE		

C-10-0941.

← going to issue 8.  
JP.

25 October, 2010

Transport Canada  
Aircraft Certification Division  
9700 Jasper Avenue  
Edmonton Alberta  
T5J 4E6

Re: FAA STC Revision for Bell 407 &amp; 206L series Helicopter Cargo Baskets

Attn: Jack Staal

TCCA File : SH00-48

Please forward the following documents to the FAA in order to bring the STC up to date:

FAA STC Application Form	8110.12	
Modification Approval Request Application Form	MOD698	Rev. 1
Transport Canada Supplemental Type Certificate (copy)	SH00-48	Issue 7
FAA Supplemental Type Certificate (copy)	SR02253NY	Apr.19/2006

**A (407 Provisions)**

Compliance Program	CP493	Rev. 2
Compliance Program	CP606	Rev. 0
AE-100 Form	AE493	Rev. 1
AE-100 Form	AE700	Rev. 1
* Document Control List	DCL700	Rev. 1
* Instructions for Continued Airworthiness	ICA 700.90	Rev. 0
* Flight Manual Supplement	FMS 700.91	Rev. 0
Installation Drawing (407 provisions)	60602	Rev. 0

**B (407 Low-Mounted Fixed)**

Compliance Program	CP606	Rev. 0
AE-100 Form	AE606	Rev. 2
* Document Control List (Installation)	DCL606	Rev. 3
* Instructions for Continued Airworthiness	ICA 492.90	Rev. 1
* Flight Manual Supplement	FMS 606.01	Rev. 2
Installation Drawing	60601	Rev. 2
Engineering Report	ER 606.01	Rev. 0
Engineering Report	ER 606.02	Rev. 0
Engineering Report	ER 492.01	Rev. 0
Engineering Report	ER 492.02	Rev. 0
Engineering Report	ER 492.03	Rev. 0
Engineering Report	ER 492.04	Rev. 0

**C (407 High-Mounted Fixed)**

Compliance Program	CP606	Rev. 0
AE-100 Form	AE606-1	Rev. 0
* Document Control List	DCL606-1	Rev. 1
* Instructions for Continued Airworthiness	MI 606.01	Rev. 2
* Flight Manual Supplement	FMS 606.01	Rev. 1
Installation Drawing	60602	Rev. 0

(Items marked \* are found on the STC)

Installation Drawing	60603	Rev. 0
Engineering Report	ER 606.01	Rev. 0
Engineering Report	ER 606.02	Rev. 0
Engineering Report	ER 606.03	Rev. 0
Engineering Report	TR 606.04	Rev. 0
Engineering Report	TR 606.05	Rev. 0
Engineering Report	ER 492.01	Rev. 0
Engineering Report	ER 492.02	Rev. 0
Engineering Report	ER 492.03	Rev. 0
Engineering Report	ER 493.01	Rev. 1
Engineering Report	ER 493.03	Rev. 0
Engineering Report	ER 362.02	Rev. 2

**D (407 Low-Mounted Q-Release)**

Compliance Program	CP698	Rev. 0
AE-100 Form (original)	AE698-1	Rev. 0
AE-100 Form (changes)	AE698-1	Rev. 1
AE-100 Form (original)	AE698-2	Rev. 0
AE-100 Form (changes)	AE698-2	Rev. 1
AE-100 Form (changes)	AE698-2	Rev. 3
AE-100 Form (original)	AE701	Rev. 0
AE-100 Form (changes)	AE701	Rev. 1
AE-100 Form (changes)	AE701	Rev. 2
AE-100 Form (changes)	AE701	Rev. 3
* Document Control List (Installation)	DCL701	Rev. 3
Document Control List (Basket Ass'y)	DCL698-1	Rev. 1
Document Control List (Beams Ass'y)	DCL698-2	Rev. 3
* Instructions for Continued Airworthiness	ICA 698.90	Rev. 1
* Flight Manual Supplement	FMS 701.90	Rev. 2
Installation Drawing (Q-R Basket)	70101	Rev. 3
Installation Drawing (Provisions)	70102	Rev. 0
Service Instructions (Sliding Door Modification)	SI698.91	Rev. 0
Engineering Report	ER 698.01	Rev. 0
Engineering Report	ER 698.02	Rev. 0
Engineering Report	TP 698.03	Rev. 0
Engineering Report	ER 698.04	Rev. 0

**E (407 High-Mounted Q-R)**

Compliance Program	CP766	Rev. 0
AE-100 Form (original)	AE766-1	Rev. 0
AE-100 Form (changes)	AE766-1	Rev. 1
AE-100 Form (original)	AE766-2	Rev. 0
* Document Control List (Installation)	DCL766-1	Rev. 0
Document Control List (Basket Ass'y)	DCL766-2	Rev. 0
* Instructions for Continued Airworthiness	ICA 766.90	Rev. 0
* Flight Manual Supplement	FMS 766.91	Rev. 0
Installation Drawing	76601	Rev. 0
Engineering Report	ER 766.01	Rev. 0
Engineering Report	TP 766.02	Rev. 0
Engineering Report	ER 606.03	Rev. 0



**A (206L series Provisions)**

Compliance Program	CP493	Rev. 2
AE-100 Form (original approve)	AE493.01	Rev. 0
AE-100 Form (recommend)	AE493.02	Rev. 0
* Document Control List	DCL493	Rev. 6
* Instructions for Continued Airworthiness	ICA 493.90	Rev. 0
* Flight Manual Supplement	FMS 493.01	Rev. 0
Installation Drawing	49301	Rev. 2
Engineering Report	ER 493.01	Rev. 0
Engineering Report	ER 493.03	Rev. 1
Engineering Report	ER 261.02	Rev. 0

**B (206L series Lo-Mounted Fixed)**

Compliance Program	CP492	Rev. 3
AE-100 Form	AE492	Rev. 2
* Document Control List (Installation)	DCL492	Rev. 6
Document Control List (Basket Ass'y)	DCL492-1	Rev. 1
* Instructions for Continued Airworthiness	ICA 492.90	Rev. 1
* Flight Manual Supplement	FMS 492.01	Rev. 2
Installation Drawing	49201	Rev. 3
Engineering Report	ER 492.01	Rev. 0
Engineering Report	ER 492.02	Rev. 0
Engineering Report	ER 492.03	Rev. 0
Engineering Report	ER 492.04	Rev. 0
Engineering Report	ER 362.02	Rev. 2

**C (206L Low-Mounted Q-Release)**

Compliance Program	CP698	Rev. 0
AE-100 Form (original)	AE698-1	Rev. 0
AE-100 Form (changes)	AE698-1	Rev. 1
AE-100 Form (original)	AE698-2	Rev. 0
AE-100 Form (changes)	AE698-2	Rev. 1
AE-100 Form (changes)	AE698-2	Rev. 2
AE-100 Form (original)	AE702	Rev. 0
AE-100 Form (changes)	AE702	Rev. 1
AE-100 Form (changes)	AE702	Rev. 2
* Document Control List (Installation)	DCL702	Rev. 2
Document Control List (Basket Ass'y)	DCL698-1	Rev. 1
Document Control List (Beams Ass'y)	DCL698-2	Rev. 3
* Instructions for Continued Airworthiness	ICA 698.90	Rev. 1
* Flight Manual Supplement	FMS 702.90	Rev. 2
Installation Drawing (QR Basket)	70201	Rev. 3
Installation Drawing (Provisions)	70202	Rev. 0
Engineering Report	ER 698.01	Rev. 0
Engineering Report	ER 698.02	Rev. 0
Engineering Report	TP 698.03	Rev. 0
Engineering Report	ER 698.04	Rev. 0

(Items marked \* are found on the STC)

**D (206L High-Mounted Q-R)**

Compliance Program	CP766	Rev. 0
AE-100 Form (original)	AE766-1	Rev. 0
AE-100 Form (changes)	AE766-1	Rev. 1
AE-100 Form (original)	AE766-2	Rev. 0
* Document Control List (Installation)	DCL766-1	Rev. 0
Document Control List (Basket Ass'y)	DCL766-2	Rev. 0
* Instructions for Continued Airworthiness	ICA 766.90	Rev. 0
* Flight Manual Supplement (206L series)	FMS 766.92	Rev. 0
Installation Drawing	76601	Rev. 0
Engineering Report	ER 766.01	Rev. 0
Engineering Report	TP 766.02	Rev. 0
Engineering Report	ER 603.03	Rev. 0

**(ALL) (Auxiliary Step)**

AE-100 Form	AE623	Rev. 2
* Document Control List	DCL623	Rev. 2
Installation Drawing	62301	Rev. 1
Engineering Report	ER 623.01	Rev. 0

**(ALL) (Basket Modifications)**

AE-100 Form	AE704	Rev. 6
* Document Control List	DCL704	Rev. 6
Engineering Report	ER 704.02	Rev. 0

**(ALL) (Quick Release Step)**

AE-100 Form	AE800-2	Rev. 0
Compliance Program	CP800-2	Rev. 0
* Document Control List (Install)	DCL800-2	Rev. 0
Document Control List (Step Assembly)	DCL800-12	Rev. 0
* Instructions for Continued Airworthiness	ICA 800.90	Rev. 2
Installation Drawing	80002	Rev. 0
Engineering Report	ER 800.02	Rev. 0

The following fabrication & assembly drawings are applicable to many configurations of baskets, therefore are provided separately to reduce duplication.

**Drawings:**

36255 R.1	49208 R.1	49301 R.2	60640 R.0	62340 R.0	69831 R.3	70428 R.0
36261 R.6	49209 R.1	49311 R.3	60641 R.0	69810 R.2	70101 R.3	70438 R.0
36262 R.1	49210 R.1	49312 R.4	60642 R.0	69811 R.2	70102 R.0	76601 R.0
36271 R.1	49212 R.0	49320 R.1	60643 R.0	69812 R.1	70201 R.3	76610 R.0
36272 R.1	49213 R.1	60601 R.2	60644 R.0	69821 R.1	70202 R.0	76611 R.0
36273 R.1	49214 R.0	60602 R.0	60645 R.0	69822 R.0	70401 R.1	76621 R.0
36274 R.1	49215 R.0	60603 R.0	60646 R.0	69823 R.1	70402 R.1	76622 R.0
36275 R.2	49216 R.0	60620 R.1	60647 R.0	69824 R.0	70403 R.3	76623 R.0
36277 R.0	49217 R.1	60621 R.2	60648 R.0	69825 R.0	70405 R.2	76625 R.0
36278 R.2	49218 R.2	60622 R.1	60649 R.0	69826 R.0	70406 R.0	76630 R.0
36280 R.2	49219 R.0	60624 R.0	60650 R.0	69827 R.1	70407 R.0	80002 R.0
49201 R.3	49221 R.3	60630 R.0	62301 R.1	69830 R.0	70408 R.0	80010 R.1
49205 R.1	49222 R.2	60631 R.0	62302 R.0	69830 R.3	70409 R.0	80020 R.0
49207 R.1	49230 R.0	60632 R.0	62320 R.2	69831 R.0	70420 R.0	

**AERO DESIGN LTD.**

2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027

Fax: 403-250-8333

[www.aerodesign.ca](http://www.aerodesign.ca)

Every attempt has been made to provide a package of data that is as complete as possible, sorted in a fashion that resembles the multiple configurations that are found on the STC. In addition, copies of the documents have been sorted by type in separate folders, if it will help comparing similar documents.

The data has been copied onto 3 (three) separate CD-ROM disks. Please keep one copy for your files, and forward the other two to the FAA.

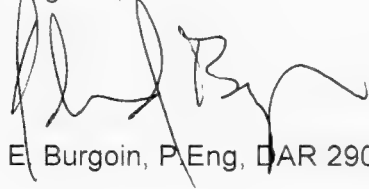
If there is any requirement for more information, if you find any document that requires correct, or must pass on any inquiry from the FAA, please inform Aero Design Ltd. as soon as possible. You may reach us either at the phone numbers above, or at the following e-mail addresses:

[ted@aerodesign.ca](mailto:ted@aerodesign.ca)  
[steve@aerodesign.ca](mailto:steve@aerodesign.ca)

(DAR 290M)  
(engineering technologist)

We will do our best to rectify any concern with as little delay as possible.

Regards,



E. Burgoin, P.Eng, DAR 290M


Encl.

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		FORM APPROVED O.M.B. No. 04-R0078
<b>APPLICATION FOR TYPE CERTIFICATE, PRODUCTION CERTIFICATE, OR SUPPLEMENTAL TYPE CERTIFICATE</b>		
1. Name and address of applicant Aero Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, T2E 6R7 Canada	2. Application made for - <input type="checkbox"/> Type Certificate <input type="checkbox"/> Production Certificate <input checked="" type="checkbox"/> Supplemental Type Certificate	3. Product involved <input checked="" type="checkbox"/> Aircraft <input type="checkbox"/> Engine <input type="checkbox"/> Propeller
<b>4. TYPE CERTIFICATE</b> (Complete item 4a below)		
a. Model designation(s) (All models listed are to be completely described in the required technical data, including drawings representing the design, material, specifications, construction, and performance of the aircraft, aircraft engine, propeller which is the subject of this application.)		
<b>5. PRODUCTION CERTIFICATE</b> (Complete items 5a-c below. Submit with this form, in manual form, one copy of quality control data or changes thereto covering new products, as required by applicable FAR.)		
a. Factory address (If different from 1 above)	b. Application is for - <input type="checkbox"/> New Production Certificate <input type="checkbox"/> Additions to Production Certificate (Give P.C. No.)	P.C. No.
c. Applicant is holder of or a licensee under a Type Certificate or a Supplemental Type Certificate (Attach evidence of licensing agreement and give certificate number)		T.C./S.T.C. No.
<b>6. SUPPLEMENTAL TYPE CERTIFICATE</b> (Complete items 6a-d below)		
a. Make and model designation of product to be modified Bell Helicopter (Textron) Model 206L series, 407 Type certificate Data Sheet: H-92 (FAA TCDS: H2SW)		
b. Description of modification Revision to FAA STC SR02253NY, Installation of External Cargo Basket, Quick Release Provisions, and Step Provisions for mounting the Cargo Basket are installed by replacement of the landing gear saddles, with new saddles that incorporate additional hardware. Support beams attach to the fasteners in the provisions. The steel frame and mesh basket attaches to the support beams, to carry cargo externally. The basket can be mounted and removed from the beams without tools. Different cargo basket and support beam combinations are available for baskets that mount "high" beside the fuselage, or "low" between the cross-tube legs of the landing gear. Optional Steps attach to the same provisions for the Cargo Baskets		
c. Will data be available for sale or release to other persons? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	d. Will parts be manufactured for sale? (Ref. FAR 21.303) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
<b>7. CERTIFICATION</b> - I certify that the above statements are true		
Signature of certifying official 	Title E. Burgoin DAR 290M (AERO Design Ltd.)	Date 30 October, 2010



## MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD698, Rev. 1

<b>1. NAME AND ADDRESS OF APPLICANT:</b>		<b>2. IDENTIFICATION OF PRODUCT</b>				
AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7		MAKE:  Bell Helicopter (Textron)	MODEL:  206L series, 407			
ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		SERIAL No.:  All eligible	REGISTRATION:  All eligible			
<b>3. REQUEST FOR:</b>						
A. SUPPLEMENTAL TYPE CERTIFICATE (STC)		<input type="checkbox"/>				
B. STC/STA REVISION		<input type="checkbox"/> STC/STA No.				
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)		<input type="checkbox"/>				
D. LIMITED STC/STA REVISION		<input type="checkbox"/> LSTC/LSTA No				
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE		<input type="checkbox"/>				
F. F.A.A. STC REVISION		<input checked="" type="checkbox"/> STC No. SR02253NY				
G. FAMILIARIZATION OF F.A.A. STC		<input type="checkbox"/> STC No.				
H. REPAIR DESIGN APPROVAL (RDC)		<input type="checkbox"/>				
I. PARTS DESIGN APPROVAL (PDA)		<input type="checkbox"/>				
<b>4. TITLE OF MODIFICATION OR REPAIR:</b> Quick Release Cargo Basket Installation						
<b>5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR:</b> Installation of Cargo Basket on side of the helicopter. The mounting provisions are aluminum saddles that replace the landing gear attachment fittings. Support beams for the basket are attached to the fittings. The Cargo Basket can be installed and removed from the beams without tools. This revision incorporates all design changes and revised substantiating data for all models and configurations. See SH00-48 for configurations.						
<b>6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:</b>						
A. TA NO. <u>H-92</u> B. TC No. <u>H2SW</u> C. OTHER _____						
<b>7. PROPOSED BASIS OF APPROVAL:</b>						
A. SAME AS TA <input checked="" type="checkbox"/> B. SAME AS TC <input type="checkbox"/> C. OTHER <input type="checkbox"/> (Please specify) _____						
<b>8. DOCUMENTATION CHECKLIST</b>		<b>REQUIRED</b>		<b>FOR DOT USE ONLY</b>		
		YES	NO	<b>RECEIVED</b>		
				YES	NO	DATE
COMPLIANCE PROGRAM		X				
MASTER DRAWING LIST		X				
FLIGHT MANUAL SUPPLEMENT		X				
MAINTENANCE MANUAL SUPPLEMENT			X			
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS		X				
ENGINEERING REPORTS		X				
DESIGN DRAWINGS			X			
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS		X				
ELECTRICAL LOAD ANALYSIS			X			
DRAFT STC, LSTC OR RDA			X			
WEIGHT AND MOMENT CHANGE		X				
FLIGHT TEST DATA		X				
OTHER (Specify)			X			
<b>9. APPLICANT'S REMARKS:</b> STC based on Transport Canada STC # SH00-48 issue 7						
<b>10.</b> In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4.						
AERO Design Ltd.		Consultant		22 October, 2010		
PER 		TITLE		DATE		
SIGNATURE OF APPLICANTS						
<b>11.</b>						
SIGNATURE OF REGIONAL ENGINEER				DATE		

# Bell Cargo Basket Configuration Matrix

26 October 2010

As of Issue 7, April 07, 2009

TC TCDS H-92 (FAA H2SW) Rotorcraft Type	STC SH00-48 iss. 7		Required Documentation			Modification Basis of Certification
	Modification Configuration		Installation Document *	Flight Manual Supplement *	Instructions for Continued Airworthiness **	
<b>Bell Helicopter (Textron) 407</b>	<b>A</b>	Provisions	DCL 700, Rev. 1	FMS 700.91, Rev. 0	ICA 700.90, Rev. 0	As per TCDS
	<b>B</b>	Low-Mount Fixed	DCL 606, Rev. 3	FMS 606.01, Rev. 2	ICA 492.90, Rev. 1	As per TCDS
	<b>C</b>	High-Mount Fixed	DCL 606-1, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
	<b>D</b>	Low-Mount Quick-Release	DCL 701, Rev. 3	FMS 701.90, Rev. 2	ICA 698.90, Rev. 1	As per TCDS
	<b>E</b>	High-Mount Quick-Release	DCL 766-1, Rev. 0	FMS 766.91, Rev. 0	ICA 766.90, Rev. 0	As per TCDS
<b>Bell Helicopter (Textron) 206L, 206L-1, 206L-3, 206L-4</b>	<b>A</b>	Provisions	DCL 493, Rev. 6	FMS 493.01, Rev. 0	ICA 493.90, Rev. 0	FAR 27 Amdt. 27-24
	<b>B</b>	Low-Mount Fixed	DCL 492, Rev. 6	FMS 492.01, Rev. 2	ICA 492.90, Rev. 1	FAR 27 Amdt. 27-24
	<b>C</b>	Low-Mount Quick-Release	DCL 702, Rev. 2	FMS 702.90, Rev. 1	ICA 698.90, Rev. 1	FAR 27 Amdt. 27-30
	<b>D</b>	High-Mount Quick-Release	DCL 766-1, Rev. 0	FMS 766.92, Rev. 0	ICA 766.90, Rev. 0	FAR 27 Amdt. 27-30
<b>ALL (407 &amp; 206L series)</b>	Pilot Step		DCL 623, Rev. 0	n/a	n/a	FAR 27 Amdt. 27-30
	Basket Modifications		DCL 704, Rev. 0	n/a	n/a	FAR 27 Amdt. 27-30
	Quick-Release Step		DCL 800-2, Rev. 0	n/a	ICA 800.90, Rev. 2	FAR 27 Amdt. 27-30

\* or later Transport Canada approved revision.    \*\* or later Transport Canada accepted revision.

Subsequent changes to DCL766-1 (rev 1), DCL623 (rev. 2), DCL704 (rev. 6)

# Bell Cargo Basket Configuration Matrix

26 October 2010

As of 19 April, 2006

FAA TCDS H2SW (TCCA H-92)	STC SR02253NY		Required Documentation			Modification Basis of Certification
	Modification Configuration		Installation Document *	Flight Manual Supplement *	Instructions for Continued Airworthiness **	
Rotorcraft Type						
Bell Helicopter (Textron) 407	A	Provisions	DCL 606, Rev. 1 or DCL 606-1, Rev. 1	FMS 700.91, Rev. 0	MI 606.01, Rev. 2	As per TCDS
	B	Low-Mount Fixed	DCL 606, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
	C	High-Mount Fixed	DCL 606-1, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
Bell Helicopter (Textron) 206L, 206L-1, 206L-3, 206L-4	A	Provisions	DCL 493, Rev. 5	FMS 493.01, Rev. 0	MI 493.01, Rev. 2	FAR 27 Amdt. 27-30
	B	Low-Mount Fixed	DCL 492, Rev. 4	FMS 492.01, Rev. 1	MI 492.01, Rev. 3	FAR 27 Amdt. 27-30
ALL (407 & 206L series)	Pilot Step		DCL 623, Rev. 0	n/a	n/a	FAR 27 Amdt. 27-30

\* or later Transport Canada approved revision.    \*\* or later Transport Canada accepted revision.

# Bell Cargo Basket Configuration Matrix

26 October 2010

Application for this change submitted 26 October, 2010

FAA TCDS H2SW (TCCA H-92)	STC SR02253NY		Required Documentation			Modification Basis of Certification
	Modification Configuration		Installation Document *	Flight Manual Supplement *	Instructions for Continued Airworthiness **	
Rotorcraft Type						
<b>Bell Helicopter (Textron) 407</b>	<b>A</b>	Provisions	DCL 700, Rev. 1	FMS 700.91, Rev. 0	ICA 700.90, Rev. 0	As per TCDS
	<b>B</b>	Low-Mount Fixed	DCL 606, Rev. 3	FMS 606.01, Rev. 2	ICA 492.90, Rev. 1	As per TCDS
	<b>C</b>	High-Mount Fixed	DCL 606-1, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
	<b>D</b>	Low-Mount Quick-Release	DCL 701, Rev. 3	FMS 701.90, Rev. 2	ICA 698.90, Rev. 1	As per TCDS
	<b>E</b>	High-Mount Quick-Release	DCL 766-1, Rev. 1	FMS 766.91, Rev. 0	ICA 766.90, Rev. 0	As per TCDS
<b>Bell Helicopter (Textron) 206L, 206L-1, 206L-3, 206L-4</b>	<b>A</b>	Provisions	DCL 493, Rev. 6	FMS 493.01, Rev. 0	ICA 493.90, Rev. 0	FAR 27 Amdt. 27-24
	<b>B</b>	Low-Mount Fixed	DCL 492, Rev. 6	FMS 492.01, Rev. 2	ICA 492.90, Rev. 1	FAR 27 Amdt. 27-24
	<b>C</b>	Low-Mount Quick-Release	DCL 702, Rev. 2	FMS 702.90, Rev. 1	ICA 698.90, Rev. 1	FAR 27 Amdt. 27-30
	<b>D</b>	High-Mount Quick-Release	DCL 766-1, Rev. 1	FMS 766.92, Rev. 0	ICA 766.90, Rev. 0	FAR 27 Amdt. 27-30
<b>ALL (407 &amp; 206L series)</b>	Pilot Step		DCL 623, Rev. 2	n/a	n/a	FAR 27 Amdt. 27-30
	Basket Modifications		DCL 704, Rev. 6	n/a	n/a	FAR 27 Amdt. 27-30
	Quick-Release Step		DCL 800-2, Rev. 0	n/a	ICA 800.90, Rev. 2	FAR 27 Amdt. 27-30

\* or later Transport Canada approved revision.    \*\* or later Transport Canada accepted revision.





Department of Transport

# Supplemental Type Certificate

This approval is issued to:

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada T2E 6R7

**Number:** SH00-48

**Issue No.:** 7

**Approval Date:** December 08, 2000

**Issue Date:** April 07, 2009

**Responsible Office:**

Prairie and Northern

**Aircraft/Engine Type or Model:**

BELL 206L, 206L-1, 206L-3, 206L-4, 407

**Canadian Type Certificate or Equivalent:**

BELL 206L, 206L-1, 206L-3, 206L-4, 407 H-92

**Description of Type Design Change:**

Installation of Cargo Basket / External Attachment  
Provisions/ Auxiliary step./Quick Release Step

**Installation/Operating Data,  
Required Equipment and Limitations:**

**Bell 407 only:**

**407 Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 3 May 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)

**Conditions:** This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.



R.A. Goossens  
For Minister of Transport



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**Bell 407 only:** (Continued)

**407 Configuration B - External Cargo Basket (Low Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)

REV. 1 = STEEL BEAMS

REV. 1  
11/11/05  
LEAVE IT



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN

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**Bell 407 only:** (Continued)

**407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):**

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 3, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 407 Configuration E - External Cargo Basket Installation High Mounted Quick Release**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 206L, L-1, L-3, L-4 only:**

**206L Series Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**206L Series Configuration B - External Cargo Basket (Low Mounted):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

**206L Series Configuration C - External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 2, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**206L Series Configuration D - External Cargo Basket Installation (High Mounted Quick Release):**

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push-out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada accepted, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

**All Models (Bell 206L series and 407)**

**Auxiliary Step Installation:**

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 January 2005, or later approved revision.

REV. 2 - STEP REDESIGN

The auxiliary step is optional and is not required with installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 7)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**All Models (Bell 206L series and 407)**

**Cargo Basket Modifications:**

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

**Quick Release Step Installation:**

Installation of the Low Mounted Quick Release Cargo Basket (407 - Configuration D; 206L - Configuration C) is required prior to installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List DCL800-2, Rev. 0, dated 2 December 2008, or later approved revision.

The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2, dated 2 December 2008, or later accepted revision, is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27, amendment 27-30.


— End —

REV. 6  
2/1  
ADDS "WHEEL"  
ALL INTERVENING  
REVISIONS ADD  
MODS APPLICABLE TO  
OTHER STL'S.

SENDER ACCOUNT NO. N° DE COMPTE DE L'EXPÉDITEUR 4367155		IMPORTANT TELEPHONE (403) 250 8027	
SENDER (FROM) : EXPÉDITEUR (DE) AERO DESIGN		MO DY JR YR/AN 10/26/10	
STREET ADDRESS / ADRESSE (N° ET RUE) 2013 39 AVE NE		APT. SUITE / APP. BUREAU	
CITY / VILLE CALGARY		PROV./STATE/ÉTAT AB	POSTAL / ZIP T2E 6R7
RECEIVER (TO) : DESTINATAIRE (À) TRANSPORT CANADA - AIRCRAFT			
STREET ADDRESS / ADRESSE (N° ET RUE) 9700 JASPER AVE.		APT. SUITE / APP. BUREAU 11TH FLOOR	
CITY / VILLE EDMONTON		PROV./STATE/ÉTAT AB	POSTAL / ZIP T5J 4E6
ATTN (NAME DEPT) : À L'ATTENTION DE (NOM SERVICE) JACK STAAL		IMPORTANT TELEPHONE (780) 4955227	
DESCRIPTION (INCLUDING DANGEROUS GOODS / INCLUANT MARCHANDISES DANGEREUSES) DOCUMENTS			
SENDER REFERENCE (IF ANY) : REF DE L'EXPÉD		PICK UP / CUEILLETTE - N° DE CONF	
19206667		0002	

SENDER'S SIGNATURE / SIGNATURE DE L'EXPÉDITEUR  
X SEE CONDITIONS OF CARRIAGE ON REVERSE X COLIBITIONS DE TRANSPORT AU VERSO

1746040

SHIP MODE / MODE DE TRANSPORT			
AIR AÉRIEN		GROUND ROUTIER	
<input type="checkbox"/>		<input checked="" type="checkbox"/>	
PKG / EMBAL		SERVICE	
TYPE ONLY TYPE SEULEMENT	PUR- LETTER	PIECE ONLY PIECE SEULEMENT	9 AM
	<input type="checkbox"/>		9 h
	PUR- PAK		10:30AM
	<input checked="" type="checkbox"/>		10 h 30
OTHER AUTRE	<input type="checkbox"/>	SAT. SAM.	<input type="checkbox"/>
PAYMENT / PAIEMENT			
CASH COMPTANT		CREDIT CARD CARTE DE CREDIT	
<input type="checkbox"/>		<input type="checkbox"/>	
RECEIVER OR THIRD PARTY ACCOUNT N°			
RECEIVER DESTINA- TAIRE		3RD PARTY TIERS	
<input type="checkbox"/>		<input type="checkbox"/>	
SENDER EXPÉDITEUR			
SHIPMENT / DÉTAILS / EXPÉDITION			
#Nbre PCS (4 MAXIMUM)		WEIGHT / POIDS SUBJ TO CORR / SUJET À CORR	
1		KG	LB
			1
DECLARED VALUE / VALEUR DÉCLARÉE			
SUTCHARGE APP. / P. C. C. P.			
SUPPLEMENT AU DESSUS DE			
\$		\$5 000 MAX	
		MAX 5 000 \$	
SEE NEXT PAGE FOR ADDITIONAL CONDITIONS OF TRANSPORTATION			

# Purolator

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COURIER INITIALS INITIALES DU COURRIER <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"> </div>	COURIER ROUTE ITINÉRAIRE DU COURRIER <div style="border: 1px solid black; width: 100%; height: 40px; display: flex; align-items: center; justify-content: center;"> </div>	MO    DY/JR    YR/AN <div style="border: 1px solid black; width: 100%; height: 40px; display: flex; align-items: center; justify-content: center;"> </div>
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NO./N      TYPE <input type="checkbox"/> VISA <input type="checkbox"/> MC <input type="checkbox"/> AMEX	EXP DATE D'EXP
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0. / N° DE COMPTE DU DESTINATAIRE OU TIERS	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">           CHARGES FRAIS         </td> <td style="padding: 5px;">           TOTAL AMOUNT / MONTANT TOTAL         </td> </tr> </table>	CHARGES FRAIS	TOTAL AMOUNT / MONTANT TOTAL
CHARGES FRAIS	TOTAL AMOUNT / MONTANT TOTAL		

THIRD PARTY BILLING NAME & ADDRESS	FACTURATION À UN TIERS (NOM & ADRESSE)
------------------------------------	--

<p><b>LIMITATION OF LIABILITY - IMPORTANT - PLEASE READ</b>          THE AMOUNT OF ANY LOSS OR DAMAGE FOR WHICH THE CARRIER MAY BE RESPONSIBLE IS LIMITED TO THE GROSS WEIGHT OR VALUE OF THE SHIPMENT, WHICHEVER IS LOWER. TOTAL WEIGHT OF THE SHIPMENT, WHEN A LIMITED VALUE IS DECLARED ON THE FACTURE DE TRANSPORT, BY THE COMBINATION SET/CH. MAXIMUM DECLARED VALUE SHALL NOT EXCEED \$100.00. NO OTHER CARRIER'S CONDITIONS OR BANK HEREON. NO LIMITATION AND EXCLUSIONS OF CARRIER LIABILITY WHICH ARE HEREBY ACCEPTED.</p>	<p><b>LIMITATION DE RESPONSABILITÉ - IMPORTANT - LISEZ S.V.P.</b>          LE MONTANT DE LA PERTE OU DU DOMMAGE POUR LEQUEL LE TRANSPORTEUR PEUT ÊTRE RESPONSABLE EST LIMITÉ AU POIDS BRUT OU À LA VALEUR DÉCLARÉE, LEQUEL DES DEUX EST LE PLUS FAIBLE. POIDS BRUT TOTAL DU COLIS, LORSQU'UNE VALEUR DÉCLARÉE EN DÉCLARATION DE TRANSPORT, PAR LA COMBINAISON SET/CH. LE MAXIMUM DÉCLARÉ NE PEUT PAS DÉPASSER 100 \$ N.B. VOUS DEVEZ PRENDRE EN CONSIDÉRATION LES CONDITIONS À L'ÉGARD DU COMPOSITEUR DE LA FACTURE ET DES ÉLÉMENTS DE RESPONSABILITÉ DU TRANSPORT. AUCUNES ÉLÉMENTS DE RESPONSABILITÉ DU TRANSPORT SONT ACCEPTÉS PAR LES PRÉSENTES.</p>
---	--

PLEASE REFER TO BILL OF LADING NUMBER FOR SHIPMENT STATUS INQUIRIES.  
POUR TOUT RENSEIGNEMENT VEUILLEZ NOUS COMMUNIQUER LE NUMERO DE  
CONNAISSEMENT

SENDER RETAIN THIS COPY / COPIE DE L'EXPÉDITEUR



**Steven Fahey**

---

**From:** "Steven Fahey" <steve@aerodesign.ca>  
**To:** "Staal, Jack" <STAALJ@tc.gc.ca>  
**Cc:** "Dave Austen" <AustenD@tc.gc.ca>; "Ted Burgoin" <ted@aerodesign.ca>  
**Sent:** Tuesday, October 05, 2010 4:54 PM  
**Subject:** Re: Outstanding FAA STC Applications  
 Jack,

We have several pending FAA STC applications and they are all stuck on something it seems. Dave Austen has been the #1 contact on all of these up to now, so if in doubt, ask him. The Destiny projects are particularly unusual.

Here's the list:

1 Aero Design:

Renewal of FAA STC for External Cargo Basket on Bell 206L/407 series (SH00-48) SR02253NY  
 Application was submitted in april 2009.  
 We do not have access to this NAPA file, if it is C-09-0443  
 No information about this project for a long time.

Your comment that this was "cancelled out of the blue" has me VERY CONCERNED because we have requested updates on that project many times, and nobody mentioned this. Please check carefully and let's get Kyle on the phone if there is a big problem.

2 Destiny:

Issue a new FAA STC for Remote Guidance System on Bell 205/212/412 series (SH10-1)  
 Application for FAA STC was submitted in February 2010.  
 I do not know what your NAPA file number is for this. I do not have a signed copy of the application form.  
 The FAA file number is ST6627NY-R  
 I receive a list of queries from the FAA dated in May - but it only reached me in July after I asked for an update then.  
 Not a peep since.  
 Recently we needed to add the 412 to the approval. This was done on the TCCA STC (SH10-1 issue 2) ...and it would be worthwhile considering whether we should amend the FAA STC application.  
 This may warrant a phone call to Kyle Williams to find out where the application is at first, then decide if it is safe to slip in a change.

3 Destiny:

Issue a new FAA STC for Remote Guidance System on Eurocopter AS350/355 series (SH10-8)  
 Application for FAA STC was submitted in May 2010.  
 Your NAPA file number is for this is C-10-0375. Another file to which I do not have access thru NDWL.  
 The FAA file number is ST6733NY-R  
 Recently it came to light that the AS355F2 had been omitted from SH10-8, and it has been added to issue 2.  
 Soon after, we got a query from the FAA on this file, and I sent my reply through Dave Austen.  
 This one I assume is currently being examined. It probably helped that we sent in the addition of the AS355F2.

Steven Fahey  
[steve@aerodesign.ca](mailto:steve@aerodesign.ca)

10/5/2010

Aero Design Ltd.  
2013 - 39th Avenue NE  
Calgary, Alberta, Canada  
T2E 6R7  
tel: (403) 250-8027  
fax: (403) 250-8333  
[www.aerodesign.ca](http://www.aerodesign.ca)

----- Original Message -----

**From:** Staal, Jack  
**To:** 'Steven Fahey'  
**Sent:** Tuesday, October 05, 2010 12:33 PM  
**Subject:** RE: FW: Outstanding FAA STC Applications

Steve,

NAPA number is C-09-0443

JAck

---

**From:** Steven Fahey [mailto:[steve@aerodesign.ca](mailto:steve@aerodesign.ca)]  
**Sent:** Tuesday, October 05, 2010 1:33 PM  
**To:** Staal, Jack  
**Subject:** Re: FW: Outstanding FAA STC Applications

The FAA have been playing games with it for a very long time.  
You need a chat with Dave over the tortured history.  
The STC revision was sort-of cancelled, but the FAA are supposed to be reviewing an application for a new STC project in its stead. So I really should be asking for an update on the "new" FAA STC application, but from here I cannot figure out what NAPA file number Dave assigned for that one.

Steve

----- Original Message -----

**From:** Staal, Jack  
**To:** 'Steven Fahey'  
**Sent:** Tuesday, October 05, 2010 9:51 AM  
**Subject:** RE: FW: Outstanding FAA STC Applications

Steven,

The FAA out of the blue cancelled the project, notified last April, with option to resubmit. That was a first for me.

I need to review where the short comings are and resubmit.

Jack

J.H. (Jack) Staal  
Aircraft Certification Technologist | Technologue, Certification des aeronefs.  
Prairie and Northern Region | Region des Prairies et du Nord

10/5/2010

Telephone | telephone: (780)495-5227  
Facsimilie | telecopier: (780)495-7963  
Email | courriel: jack.staal@tc.gc.ca  
TTY / ATS : 1-888-675-6863

Transport Canada | Transports Canada  
1100- 9700, Jasper Avenue | avenue Jasper (RAED)  
Edmonton, AB T5J 4E6

Government of Canada | Gouvernement du Canada

To provide feedback to TCCA, use CAIRS. See: <<http://www.tc.gc.ca/CivilAviation/ManagementServices/QA/cairs.htm>>

Pour tout commentaire a TCAC, utiliser CAIRS. Voir <<http://www.tc.gc.ca/AviationCivile/ServicesdeGestion/AQ/ssqac.htm>>

---

**From:** Steven Fahey [mailto:steve@aerodesign.ca]  
**Sent:** Thursday, September 30, 2010 12:06 PM  
**To:** Staal, Jack  
**Subject:** Re: FW: Outstanding FAA STC Applications

Jack,

Have you received any contact from the FAA on this application?

Steven

----- Original Message -----

**From:** Steven Fahey  
**To:** Dave Austen  
**Sent:** Thursday, September 30, 2010 9:13 AM  
**Subject:** Re: FW: Outstanding FAA STC Applications

Dave,

Could you find out if this was carried through? The revision to SR02253NY has been in the works for about 18 months.

Steven

----- Original Message -----

**From:** kyle.williams@faa.gov  
**To:** Austen, David  
**Cc:** steve@aerodesign.ca  
**Sent:** Thursday, August 19, 2010 5:32 AM  
**Subject:** Re: FW: Outstanding FAA STC Applications

Good Morning David,

Just saw your message below. I'm working from home today but will try to provide a status to you later today.

10/5/2010

Best Regards,

Kyle Williams  
New York Aircraft Certification Office  
1600 Stewart Avenue, Suite 410  
Westbury, New York 11590  
ANE-172 Aviation Safety Engineer  
Office: 516-228-7347

From: "Austen, David" <david.austen@tc.gc.ca>  
To: Kyle Williams/AEA/FAA@FAA  
Cc: <steve@aerodesign.ca>  
Date: 08/18/2010 01:30 PM  
Subject: FW: Outstanding FAA STC Applications

---

Hi Kyle:

Could you do me a favour and see where these projects are at?  
I realize that not all are under your personal management portfolio, but we sure  
would appreciate an update from your folks.

We do know that SH10-8 is active at this point.

Cheers!

David Austen, FEC, P.Eng.  
A/Regional Superintendent | Surintendant Regional  
Aircraft Certification | Certification des aeronefs  
(780) 495-5226 | Facs/telec: (780) 495 7963

---

**From:** Steven Fahey [mailto:steve@aerodesign.ca]  
**Sent:** 18 August, 2010 11:16 AM  
**To:** Austen, David  
**Subject:** Outstanding FAA STC Applications

Dave,

It's been brought to my attention that we have not heard a response to our application for a **revision to STC SR02253NY** in a long time.

The application was sent in May 2009.

Also on their plate are applications for:

Aero Design Steps on the AS350 series (**SH08-16**)  
Destiny Nav Tech. Tracking system on Bell 205/212 (**SH10-1**) and AS350 series (**SH10-8**)

Thanks for looking into this.

Steven Fahey

10/5/2010



[steve@aerodesign.ca](mailto:steve@aerodesign.ca)  
Aero Design Ltd.  
2013 - 39th Avenue NE  
Calgary, Alberta, Canada  
T2E 6R7  
tel: (403) 250-8027  
fax: (403) 250-8333  
[www.aerodesign.ca](http://www.aerodesign.ca)

# FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS		AE-100 No.: AE698-2 Initial Issue Date: 25 May, 2006  Revision: 2 Revision Date: 25 March, 2009  Approval No.: SH00-48  Delegation No.: 290M Delegate Name: E. Burgoin Classification of Designee: Employer: AERO Design Ltd.
Aircraft Mfr: Bell Aircraft Model: 206L Series, 407 Registration: All Eligible	Model Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>	

## LIST OF APPROVED REPORTS AND DATA

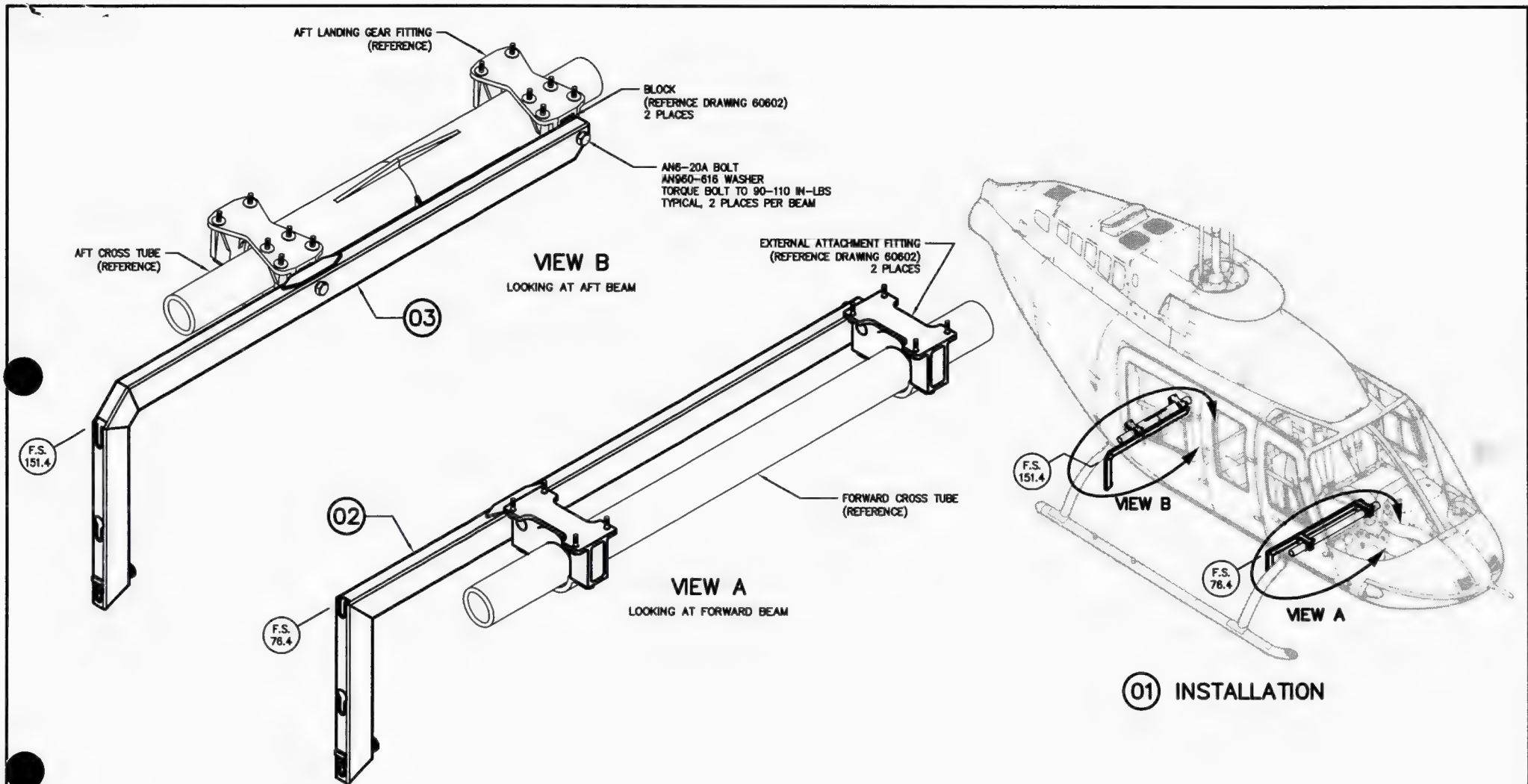
Document Number		Document Title	Compliance Status
DCL698-2	Revision 3	Document Control List and all documents referred to therein	
69830	Revision 3	Forward Beam Fabrication	
69831	Revision 3	Aft Beam Fabrication	
DATA APPROVED BY TRANSPORT CANADA			

## CERTIFICATION

UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIRMENTS.

I THEREFORE ☐ RECOMMEND FOR APPROVAL OF THESE DATA  
☒ APPROVE THESE DATA

  
 E. Burgoin, DAR 290M



4	AN960-616		WASHER	APPROVALS	DATE	<div>AERO DESIGN LTD.</div> <div>CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M</div> <div>2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7</div> <div>tel: (403) 250-8027      fax: (403) 250-8333      aerodesign@telusplanet.net</div>				
4	AN6-20A		BOLT							
1	73031-02	03	AFT BEAM (ALTERNATE)	DRAWN: JEFF CLARKE	15 JULY 2008	<div>BELL 407</div> <div>QUICK RELEASE MOUNTING PROVISIONS</div> <div>PROVISIONS INSTALLATION</div>				
1	69833-01	03	AFT BEAM (ALTERNATE)							
1	69831-02	03	AFT BEAM (ALTERNATE)	CHECKED: E. BURGAIN		<div>UNLESS OTHERWISE SPECIFIED</div> <div>DIMENSIONS ARE IN INCHES.</div> <div>TOLERANCES ON:</div> <div>DECIMALS                      ANGLES</div> <div>X.XXX    ±0.010                      ±1/2°</div> <div>X.XX     ±0.03</div> <div>X.X      ±0.1</div>				
1	69831-01	03	AFT BEAM							
1	73030-02	02	FORWARD BEAM (ALTERNATE)	<div>NOT TO SCALE</div> <div>SHEET 1 OF 2</div> <div>DWG. SIZE</div> <div>A4</div> <div>DWG. NO.</div> <div>70102</div> <div>REV.</div> <div>1</div>						
1	69832-01	02	FORWARD BEAM (ALTERNATE)							
1	69830-02	02	FORWARD BEAM (ALTERNATE)							
1	69830-01	02	FORWARD BEAM							
	70102-01	01	INSTALLATION							
01	PART NO.	ITEM	DESCRIPTION							
QTY.	LIST OF MATERIALS									

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE	BJC	JULY 15/08
1	ADD ELIGIBLE BEAMS	BJC	JULY 29/09

NOTES:

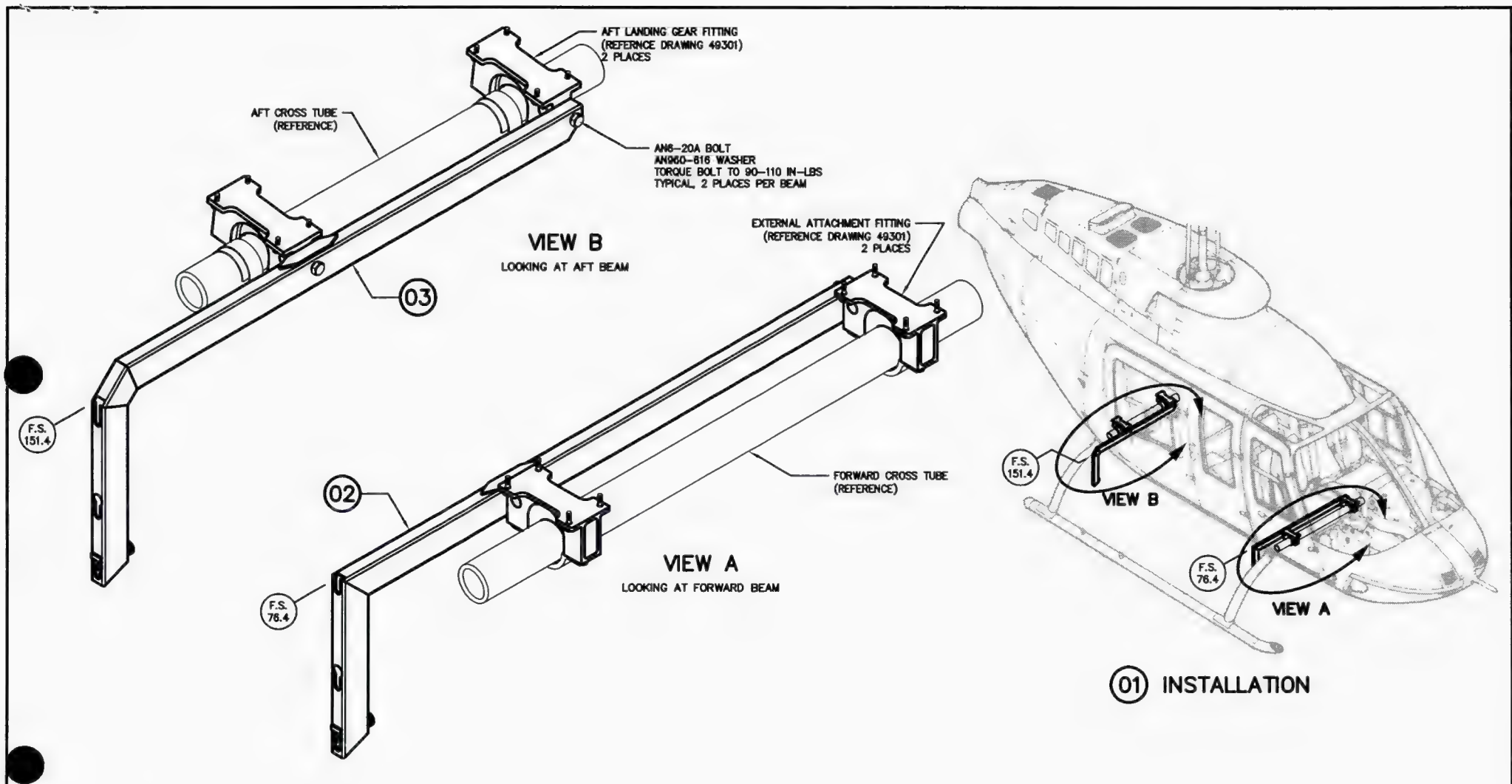
- EXTERNAL ATTACHMENT PROVISIONS INSTALLED IN ACCORDANCE WITH DRAWING 60602 IS MANDATORY PREREQUISITE FOR THIS INSTALLATION.
- HIGH SKID GEAR INSTALLATION IS MANDATORY PREREQUISITE FOR THIS INSTALLATION.
- BEAMS 73030-01 AND 73031-01 ARE USED FOR INSTALLATION OF EQUIPMENT ON BOTH LEFT AND RIGHT SIDES. PROVISIONS FOR INSTALLING THE QUICK RELEASE CARGO BASKET (69810-01) ON THE RIGHT SIDE IS PROVIDED. WEIGHT AND BALANCE SHOWN DOES NOT APPLY.

## WEIGHT AND BALANCE

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
02	FORWARD BEAM (69830-01/-02)	10.1	76.4	771.6	10.9	110.1
03	AFT BEAM (69831-01/-02)	9.8	151.4	1483.7	12.6	123.5
01	MOUNTING PROVISIONS INSTALLATION	19.9	113.3	2255.3	11.7	233.6
02	FORWARD BEAM (69832-01)	5.0	76.4	382.0	10.9	54.5
03	AFT BEAM (69833-01)	5.0	151.4	757.0	12.6	63.0
01	MOUNTING PROVISIONS INSTALLATION	10.0	113.9	1139.0	11.7	117.5

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	DRAWN: JEFF CLARKE		15 JULY 2008									
	CHECKED: E. BURGAIN				<b>BELL 407</b> <b>QUICK RELEASE MOUNTING PROVISIONS</b> <b>PROVISIONS INSTALLATION</b>							
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS                      ANGLES X.XXX ±0.010                      ±1/2" X.XX ±0.03 X.X ±0.1								NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.
									SHEET 2 OF 2	A4	70102	1





4	AN960-616		WASHER
4	AN6-20A		BOLT
1	73031-02	03	AFT BEAM (ALTERNATE)
1	69833-01	03	AFT BEAM (ALTERNATE)
1	69831-02	03	AFT BEAM (ALTERNATE)
1	69831-01	03	AFT BEAM
1	73030-02	02	FORWARD BEAM (ALTERNATE)
1	69832-01	02	FORWARD BEAM (ALTERNATE)
1	69830-02	02	FORWARD BEAM (ALTERNATE)
1	69830-01	02	FORWARD BEAM
	70202-01	01	INSTALLATION
01	PART NO.	ITEM	DESCRIPTION
QTY.	LIST OF MATERIALS		

APPROVALS	DATE
DRAWN: JEFF CLARKE	15 JULY 2008
CHECKED: E. BURGAIN	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:	
DECIMALS	ANGLES
X.XXX $\pm 0.010$	$\pm 1/2^\circ$
X.XX $\pm 0.03$	
X.X $\pm 0.1$	

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BELL 206L SERIES QUICK RELEASE MOUNTING PROVISIONS PROVISIONS INSTALLATION			
NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.
SHEET 1 OF 2	A4	70202	1

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE	BJC	JULY 15/08
1	ADD ELIGIBLE BEAMS	BJC	JULY 29/09

NOTES:

- EXTERNAL ATTACHMENT PROVISIONS INSTALLED IN ACCORDANCE WITH DRAWING 49301 IS MANDATORY PREREQUISITE FOR THIS INSTALLATION.
- HIGH SKID GEAR INSTALLATION IS MANDATORY PREREQUISITE FOR THIS INSTALLATION.
- BEAMS 73030-01 AND 73031-01 ARE USED FOR INSTALLATION OF EQUIPMENT ON BOTH LEFT AND RIGHT SIDES. PROVISIONS FOR INSTALLING THE QUICK RELEASE CARGO BASKET (69810-01) ON THE RIGHT SIDE IS PROVIDED. WEIGHT AND BALANCE SHOWN DOES NOT APPLY.

## WEIGHT AND BALANCE

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
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02	FORWARD BEAM (69832-01)	5.0	76.4	382.0	10.9	54.5
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01	MOUNTING PROVISIONS INSTALLATION	10.0	113.9	1139.0	11.7	117.5

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	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS                      ANGLES X.XXX ±0.010                      ±1/2° X.XX ±0.03 X.X ±0.1				<b>BELL 206L SERIES</b> <b>QUICK RELEASE MOUNTING PROVISIONS</b> <b>PROVISIONS INSTALLATION</b>					
					NOT TO SCALE		DWG. SIZE	DWG. NO.	REV.	
					SHEET 2 OF 2		A4	70202	1	

0                      Aft                      Fwd  
 27 13/16                      27 11/16  
 34 bags                      25 1/2                      25 3/8  
 0                      — no Deflect

37 bags                      25 1/4                      25  
    27 5/8                      27 1/2                      Deflect (Minor)

0  
~~41 bags~~                      ~~27 5/8~~                      ~~27 1/2~~                      ~~No Deflection~~

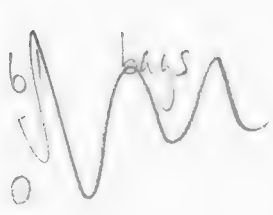
0  


---

 51 bags. ✓                      LIMIT  
    ULS  
    ↓

52 bags                      —                      moved it to 54 Bags.  
 0                                           failed @ 55 Bags.

6 bags  
 1  
 0



## DRAG LOAD ON BASKET

$$l_{\text{basket}} := 75.75 \cdot \text{in}$$

Length of basket.

$$w_{\text{basket}} := 22 \cdot \text{in}$$

Width of basket.

$$h_{\text{basket}} := 16 \cdot \text{in}$$

Height of basket.

$$A_f := w_{\text{basket}} \cdot h_{\text{basket}}$$

$$A_f = 352 \text{ in}^2$$

Frontal Area of basket.

$$A_p := l_{\text{basket}} \cdot w_{\text{basket}}$$

$$A_p = 1666 \text{ in}^2$$

Planar Area of basket.

$$\frac{l_{\text{basket}}}{w_{\text{basket}}} = 3.4$$

Fineness ratio of basket

$$C_{Do} := 1.6$$

Drag Coefficient of Basket, (overestimated)  
(Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

$$V_{ne} := 140 \cdot \text{knots}$$

Never-Exceed-Speed of Bell 407.  
(Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 156 \text{ knots}$$

Design Dive Speed of Bell 407

$$\text{Drag} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{Do}$$

$$\rightarrow \text{Drag} = 321 \text{ lbf}$$

Drag on basket. *LIMIT*

~~$$p_{\text{drag\_ult}} := \text{Drag} \cdot n_{sf} \cdot n_{ff}$$~~

~~$$p_{\text{drag\_ult}} = 553 \text{ lbf}$$~~

~~Ultimate applied Drag load on basket.~~

$$p_{\text{drag\_test}} := \text{Drag} \cdot n_{sf}$$

$$\rightarrow p_{\text{drag\_test}} = 481 \text{ lbf}$$

Ultimate Drag load on basket in Static Test.

$$AC_{\text{drag}} := 38.5 \cdot \text{in}$$

Lateral Aerodynamic Center of basket.

~~$$p_{\text{drag\_test\_beam}} := \frac{\text{Drag} \cdot n_{sf}}{2}$$~~

~~$$p_{\text{drag\_test\_beam}} = 240 \text{ lbf}$$~~

~~Ultimate Drag load on beam in Static Test.~~



## Quick Release Cargo Basket

$$W_{\text{basket}} := 45 \cdot \text{lbf}$$

Weight of basket

$$W_{\text{cargo}} := 200 \cdot \text{lbf}$$

Weight of cargo (max)

$$W_{\text{beam}} := 6 \cdot \text{lbf}$$

Weight of beam (each)

$$P_{\text{man\_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man\_lim}}$$

$$P_{\text{man\_lim}} = 858 \text{ lbf}$$

Limit maneuvering load due to cargo and basket

$$P_{\text{man\_ult}} := P_{\text{man\_lim}} \cdot n_{\text{sf}}$$

$$P_{\text{man\_ult}} = 1286 \text{ lbf}$$

Ultimate maneuvering load due to cargo and basket

$$P_{\text{man\_lim\_test}} := P_{\text{man\_lim}} - 30 \cdot \text{lbf}$$

$$P_{\text{man\_lim\_test}} = 828 \text{ lbf}$$

Limit load for test

200 lbs

34 bags.

~~37 bags~~ → 225

$$P_{\text{man\_ult\_test}} := P_{\text{man\_ult}} - 30 \cdot \text{lbf}$$

$$P_{\text{man\_ult\_test}} = 1256 \text{ lbf}$$

Ultimate load for test

51 bags.

$$W_{\text{cargo}} := 250 \cdot \text{lbf}$$

Weight of cargo (max)

(225)

$$P_{\text{man\_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man\_lim}}$$

$$P_{\text{man\_lim}} = 1033 \text{ lbf}$$

Limit maneuvering load due to cargo and basket

945

$$P_{\text{man\_ult}} := P_{\text{man\_lim}} \cdot n_{\text{sf}}$$

$$P_{\text{man\_ult}} = 1549 \text{ lbf}$$

Ultimate maneuvering load due to cargo and basket

1418

$$P_{\text{man\_lim\_test}} := P_{\text{man\_lim}} - 30 \cdot \text{lbf}$$

$$P_{\text{man\_lim\_test}} = 1003 \text{ lbf}$$

Limit load for test

915

40 bags (250)

37 bags (225)

$$P_{\text{man\_ult\_test}} := P_{\text{man\_ult}} - 30 \cdot \text{lbf}$$

$$P_{\text{man\_ult\_test}} = 1519 \text{ lbf}$$

Ultimate load for test

1388

61 bags (250)

56 bags (225)

**AERO Design Ltd.**

**ENGINEERING REPORT**

**ER698.05**

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**BELL 206L SERIES, 407**

**QUICK RELEASE BEAMS**

**LIGHT WALL MATERIAL**

Prepared by: Jeff Clarke, CET

Approved by: E. Burgoin, P.Eng., DAR 290M

Revision 0, 29 July 2009

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AERO Design Ltd.  
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## **1.0 INTRODUCTION**

This report is to document the next generation of quick release mounting beams. It has been determined through testing of a similar configuration that a lighter wall tube may be sufficient to carry ultimate loads without failure. Overall construction of the beams remains the same.

## **2.0 REFERENCE TEXT**

AERO Design Ltd. ER698.01 ER698.02, TP698.03, ER698.04

## **3.0 BASIS OF CERTIFICATION**

TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

*This report demonstrates that the installation of the Light Wall Quick Release Beams complies with the original basis of certification.*

## **4.0 APPLICABILITY OF AIRWORTHINESS DIRECTIVES**

Airworthiness Directives applicable to the Bell 206L Series and 407 were reviewed, and none were found to affect this project.



## 5.0 LOADS

### BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor:	$n_{e\_up} = 1.5$
Ultimate Forward Emergency Landing Load Factor:	$n_{e\_fwd} = 4.0$
Ultimate Sideward Emergency Landing Load Factor:	$n_{e\_side} = 2.0$
Ultimate Downward Emergency Landing Load Factor:	$n_{e\_down} = 4.0$

FAR 27.625      Fitting Factor (does not apply to articles being tested):  $n_{ff} = 1.15$

FAR 27.303      Safety Factor:  $n_{sf} = 1.5$

FAR 27.337(a)

Limit Positive Maneuvering LoadFactor:  $n_{man} = 3.5$

$n_{man\_ult} = n_{man} \cdot n_{sf}$       Ultimate Positive Maneuvering LoadFactor:  $n_{man\_ult} = 5.25$

Limit Negative Maneuvering LoadFactor:  $n_{man\_n} = -1.0$

$n_{man\_neg\_u} = n_{man\_n} \cdot n_{sf}$       Ultimate Negative Maneuvering LoadFactor:  $n_{man\_neg\_u} = -1.5$

### CRITICAL ULTIMATE LOAD FACTORS:

Downward:	Ultimate Positive Maneuvering LoadFactor:	$n_{man\_ult} = 5.25$
Forward:	Ultimate Forward Emergency Landing Load Factor:	$n_{e\_fwd} = 4.00$
Sideward:	Ultimate Sideward Emergency Landing Load Factor:	$n_{e\_side} = 2.00$
Upward:	Ultimate Upward Emergency Landing Load Factor:	$n_{e\_up} = 1.50$

Note: The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

## 5.1 Inertia Loads

The positive maneuvering load is the only critical condition.

$$W_{\text{basket}} := 45 \cdot \text{lbf}$$

Weight of basket

$$W_{\text{cargo}} := 200 \cdot \text{lbf}$$

Weight of cargo (max)

$$W_{\text{beam}} := 6 \cdot \text{lbf}$$

Weight of beam (each)

$$P_{\text{man\_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man\_lim}}$$

$$P_{\text{man\_lim}} = 858 \cdot \text{lbf}$$

Limit maneuvering load due to cargo and basket

$$P_{\text{man\_ult}} := P_{\text{man\_lim}} \cdot n_{\text{sf}}$$

$$P_{\text{man\_ult}} = 1286 \cdot \text{lbf}$$

Ultimate maneuvering load due to cargo and basket

The basket will also be tested to see if the load capacity can be increased to 225 lbs.

$$W_{\text{cargo}} := 225 \cdot \text{lbf}$$

Weight of cargo (max)

$$P_{\text{man\_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man\_lim}}$$

$$P_{\text{man\_lim}} = 945 \cdot \text{lbf}$$

Limit maneuvering load due to cargo and basket

$$P_{\text{man\_ult}} := P_{\text{man\_lim}} \cdot n_{\text{sf}}$$

$$P_{\text{man\_ult}} = 1418 \cdot \text{lbf}$$

Ultimate maneuvering load due to cargo and basket

## 5.2 Drag Load

$$l_{\text{basket}} := 75.75 \text{ in}$$

Length of basket.

$$w_{\text{basket}} := 22 \text{ in}$$

Width of basket.

$$h_{\text{basket}} := 16 \text{ in}$$

Height of basket.

$$A_f := w_{\text{basket}} \cdot h_{\text{basket}}$$

$$A_f = 352 \text{ in}^2$$

Frontal Area of basket.

$$A_p := l_{\text{basket}} \cdot w_{\text{basket}}$$

$$A_p = 1666 \text{ in}^2$$

Planar Area of basket.

$$\frac{l_{\text{basket}}}{w_{\text{basket}}} = 3.4$$

Fineness ratio of basket

$$C_{D0} := 1.6$$

Drag Coefficient of Basket, (overestimated)  
(Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

$$V_{ne} := 140 \text{ knots}$$

Never-Exceed-Speed of Bell 407.  
(Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 156 \text{ knots}$$

Design Dive Speed of Bell 407

$$P_{\text{drag\_lim}} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{D0}$$

$$P_{\text{drag\_lim}} = 321 \text{ lbf}$$

Limit Drag load on basket.

$$P_{\text{drag\_ult}} := P_{\text{drag\_lim}} \cdot n_{sf}$$

$$P_{\text{drag\_ult}} = 481 \text{ lbf}$$

Ultimate Drag load on basket.

## 6.0 STRUCTURAL COMPLIANCE

Structural compliance is demonstrated by test. The entire cargo basket configuration is tested. A jig simulating the helicopter attachments was fabricated. A pair of quick release beams was fabricated in accordance with drawing 69832 and 69833. The beams were mounted on the jig, and a basket body fabricated in accordance with drawing 69811 was installed on the beams.

The maneuvering load is applied by stacking bags of lead shot (25 lbs each) evenly over the bottom of the basket. The drag load is applied by pulling on a piece of plywood spanning the front face of the basket with a come-along attached to a load cell.

### 6.1 Limit Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{\text{man\_lim}} = 858\text{lbf}$$

Limit maneuvering load due to cargo and basket

$$P_{\text{man\_lim\_test}} := P_{\text{man\_lim}} - 30\text{-lbf}$$

$$P_{\text{man\_lim\_test}} = 828\text{lbf}$$

Limit load for test

The basket was loaded with 34 bags of lead shot (850 lbs total), and pulled 340 lbs.



Figure 6.1.1 – Limit Maneuvering Load – 200 lbs Cargo



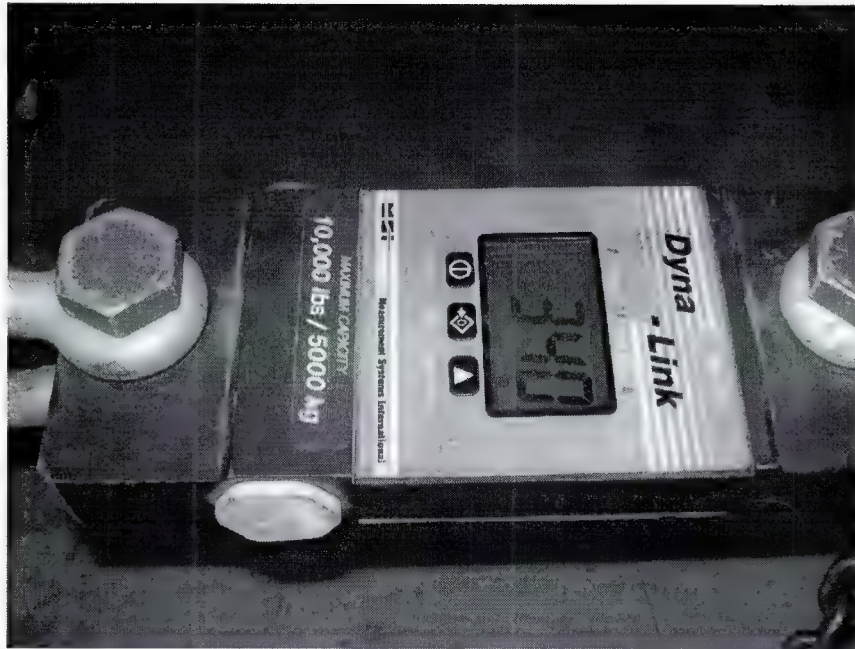


Figure 6.1.2 – Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was no deformation found.

## 6.2 Limit Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{\text{man\_lim}} = 945\text{lbf} \quad \text{Limit maneuvering load due to cargo and basket}$$

$$P_{\text{man\_lim\_test}} := P_{\text{man\_lim}} - 30\text{lbf}$$

$$P_{\text{man\_lim\_test}} = 915\text{lbf} \quad \text{Limit load for test}$$

The basket was loaded with 37 bags of lead shot (925 lbs), and pulled 340 lbs.



Figure 6.2.1 – Limit Maneuvering Load, 225 lbs Cargo



Figure 6.2.2 – Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was none found.

### 6.3 Ultimate Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{\text{man\_ult}} = 1286\text{lbf} \quad \text{Ultimate maneuvering load due to cargo and basket}$$

$$P_{\text{man\_ult\_test}} := P_{\text{man\_ult}} - 30\text{-lbf}$$

$$P_{\text{man\_ult\_test}} = 1256\text{lbf} \quad \text{Ultimate load for test}$$

The basket was loaded with 51 bags of lead shot (1275 lbs), and pulled 490 lbs.

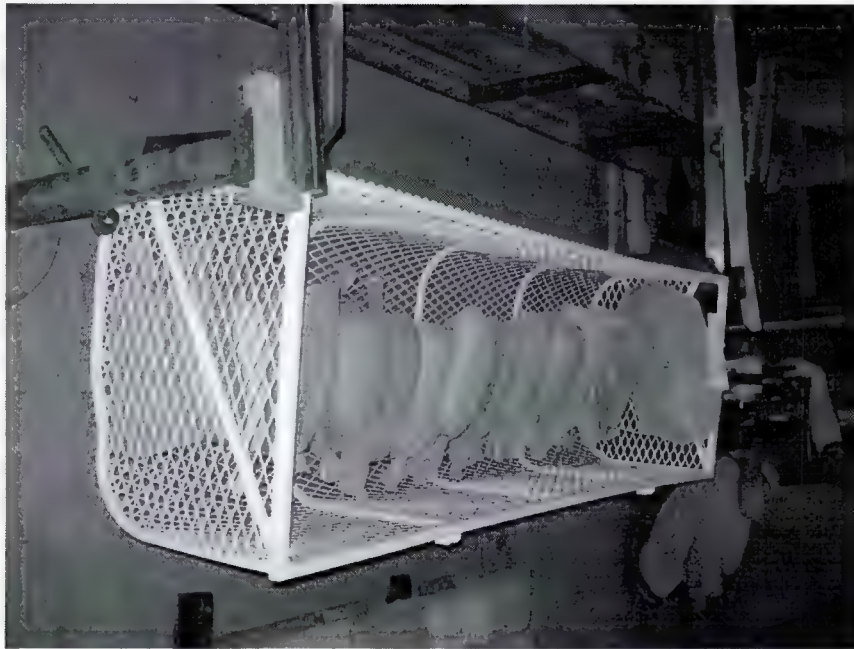


Figure 6.3.1 – Ultimate Maneuvering Load, 200 lbs Cargo

The batteries in the load cell died before a picture could be taken of the drag load.

The basket and beams sustained the ultimate maneuvering and drag loads for more than 3 seconds without failure. The light wall beams are acceptable for use with a basket rated at 200 lbs of cargo.

### 6.4 Ultimate Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{\text{man\_ult}} = 1418\text{lbf} \quad \text{Ultimate maneuvering load due to cargo and basket}$$

$$P_{\text{man\_ult\_test}} := P_{\text{man\_ult}} - 30\text{-lbf}$$

$$P_{\text{man\_ult\_test}} = 1388\text{lbf} \quad \text{Ultimate load for test}$$



The total load required is 56 bags of lead shot (1400 lbs). Loading continued from the previous condition (51 bags, 490 lbs drag). The beams carried 54 bags for more than 3 seconds, but failed after the 55<sup>th</sup> bag was placed in the basket.



Figure 6.4.1 – Maneuvering Load After Failure of Beams

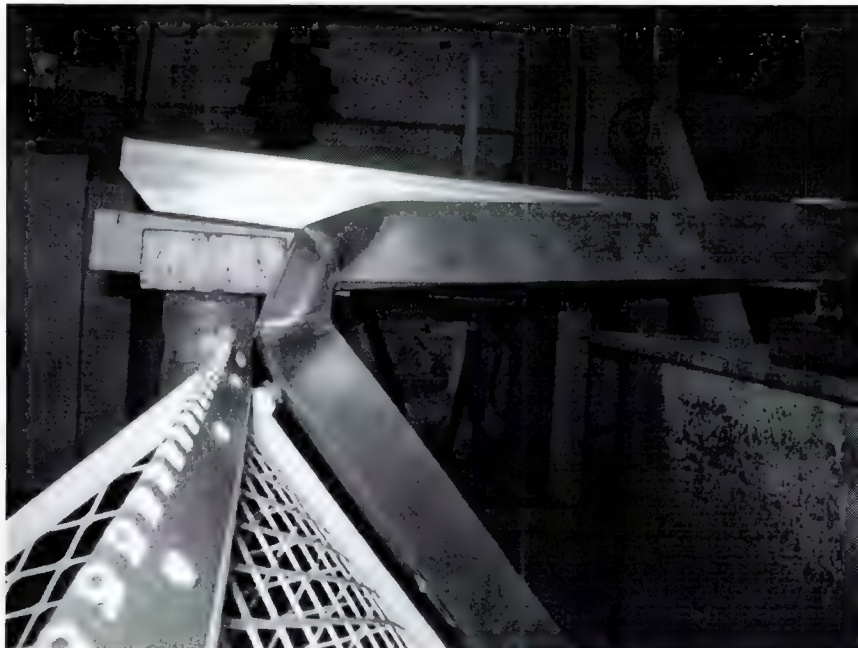


Figure 6.4.2 – Aft Beam After Failure

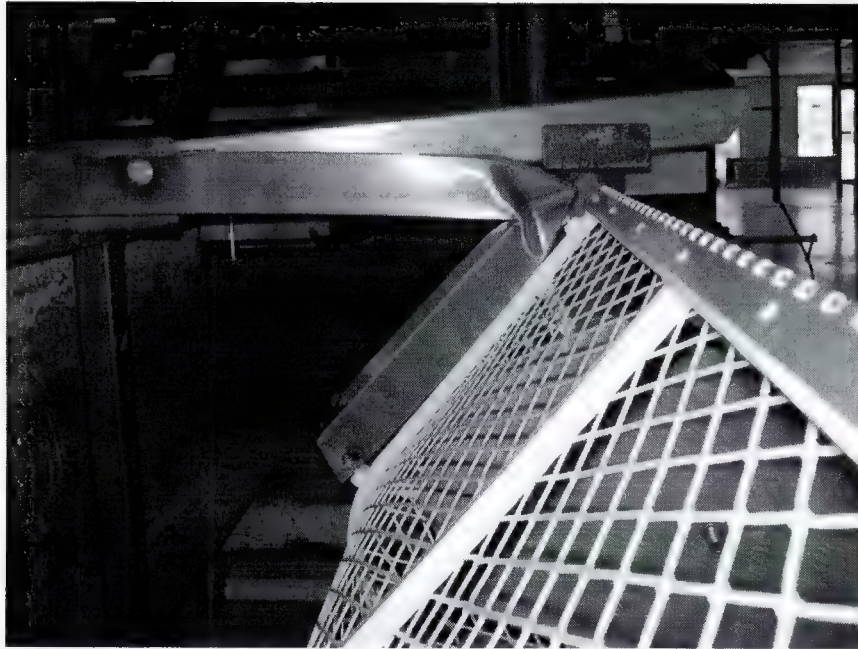


Figure 6.4.3 – Forward Beam After Failure

Since the beams failed before reaching ultimate load, the basket cannot be rated to carry 225 lbs cargo.

## 6.5 Material Consideration

The material is specified on drawings 69832 and 69833 as 1" x 2" x 0.065" wall tube (16 gauge). The documentation provided by the supplier specifies the material provide is 0.065" wall. Multiple samples were checked with a micrometer and the wall thickness was found to be 0.058" – 0.059". Since the drawing specifies 0.065" wall, and the parts tested are 0.058" wall, the test is conservative.



**Steven Fahey**

**From:** "Austen, David" <david.austen@tc.gc.ca>  
**To:** "Steven Fahey" <steve@aerodesign.ca>  
**Sent:** Wednesday, September 09, 2009 12:28 PM  
**Subject:** RE: Status of STC applications @ FAA

Hi Steve:  
 Nothing yet, so I just gave them a gentle nudge....  
 Cheers!

David Austen, FEC, P.Eng.  
 Aircraft Certification | Certification des aeronefs  
 (780) 495-5226 | Facs/telec: (780) 495 7963  
 To provide feedback to TCCA, use CAIRS.  
 See: <http://www.tc.gc.ca/CivilAviation/ManagementServices/QA/cairs.htm>  
 Pour tout commentaire à TCAC, utiliser CAIRS.  
 Voir: <<http://www.tc.gc.ca/AviationCivile/ServicesdeGestion/AQ/ssqac.htm>>

---

**From:** Steven Fahey [mailto:steve@aerodesign.ca]  
**Sent:** 09 September, 2009 2:28 PM  
**To:** Austen, David  
**Subject:** Re: Status of STC applications @ FAA

Hello Dave,

Have you heard back from them?

Steve

----- Original Message -----

**From:** Austen, David  
**To:** Steven Fahey  
**Cc:** Anthony.Troia@faa.gov ; raymond.reinhardt@faa.gov  
**Sent:** Monday, August 24, 2009 8:22 AM  
**Subject:** RE: Status of STC applications @ FAA

Thx for the note, Steven.

Anthony:

Can we enlist your assistance to let us know where the following applications stand?  
 I apologise for not having the FAA project number handy at this point.

Best regards,

David Austen, FEC, P.Eng.  
 Aircraft Certification | Certification des aeronefs  
 (780) 495-5226 | Facs/telec: (780) 495 7963  
 To provide feedback to TCCA, use CAIRS.  
 See: <http://www.tc.gc.ca/CivilAviation/ManagementServices/QA/cairs.htm>  
 Pour tout commentaire à TCAC, utiliser CAIRS.  
 Voir: <<http://www.tc.gc.ca/AviationCivile/ServicesdeGestion/AQ/ssqac.htm>>

---

**From:** Steven Fahey [mailto:[steve@aerodesign.ca](mailto:steve@aerodesign.ca)]  
**Sent:** 21 August, 2009 12:00 PM  
**To:** Austen, David  
**Subject:** Status of STC applications @ FAA

Hi Dave,

I'd like to check in on any news from the FAA. We have several STC applications open:

Cargo baskets for the  
Bell 212/205 SH07-56 (SR02680NY) DONE!  
Bell 206B SH09-5  
Bell 407/206L SH00-48 (SR02253NY)  
MD600N SH09-1

Destiny/Kodiak SH02-17 (SR01655NY)

Thanks,

Steven Fahey  
[steve@aerodesign.ca](mailto:steve@aerodesign.ca)  
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Calgary, Alberta, Canada  
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fax: (403) 250-8333  
[www.aerodesign.ca](http://www.aerodesign.ca)

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CITY / VILLE <b>CALGARY</b>		PROV/STATE/ÉTAT <b>AB</b>	POSTAL / ZIP <b>T2E 6R7</b>
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STREET ADDRESS / ADRESSE (N° ET RUE) <b>11TH Floor 9700 JASPER AVE</b>			
CITY / VILLE <b>EDMONTON</b>		PROV/STATE/ÉTAT <b>AB</b>	POSTAL / ZIP <b>T5J 4E6</b>
ATTN: (NAME / DEPT.) / À L'ATTENTION DE (NOM / SERVICE) <b>JACK STAAL</b>		IMPORTANT TELEPHONE <b>(780) 4955227</b>	
DESCRIPTION INCLUDING DANGEROUS GOODS / INCLUANT MARCHANDISES DANGEREUSES <b>Documents</b>			
SENDER REFERENCE (IF ANY) / REF DE L'EXPED. <b>8914-2825</b>		PICK UP / CUEILLETTE - N° DE CONF <b>0002</b>	

SENDER SIGNATURE / SIGNATURE DE L'EXPÉDITEUR

X **S. Staal** X

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PKG. / EMBAL. / SERVICE			
TYPE ONLY TYPE SÉULEMENT	PUR LETTER <input type="checkbox"/>	9 AM 9h <input type="checkbox"/>	
	PUR-PAK <input checked="" type="checkbox"/>	10:30 AM 10h30 <input type="checkbox"/>	
	OTHER AUTRE <input type="checkbox"/>	SAT. SAM. <input type="checkbox"/>	
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RECEIVER DESTINATAIRE <input type="checkbox"/>		3RD PARTY TIERS <input checked="" type="checkbox"/>	
SENDER EXPÉDITEUR <input checked="" type="checkbox"/>			
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4-Maximum	Weight / Poids	SUBJ TO COM / SOUJET À CORR.	
1	KG	LB	
DECLARED VALUE / VALEUR DÉCLARÉE			
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RECEIVER OR THIRD PARTY ACCOUNT NO. / N° DE COMPTE DU DESTINATAIRE OU TIERS	CHARGES FRAIS
TOTAL AMOUNT / MONTANT TOTAL	

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THE AMOUNT OF ANY LOSS OR DAMAGE TO ANY ARTICLE CARRIED BY THIS CARRIER SHALL NOT EXCEED \$200 PER POUND (OR \$441 PER KILOGRAM) COMPUTED ON THE TOTAL WEIGHT OF THE SHIPMENT. THE CARRIER'S LIABILITY SHALL BE LIMITED TO THE DECLARED VALUE OF THE SHIPMENT. THE CARRIER'S LIABILITY SHALL BE LIMITED TO THE DECLARED VALUE OF THE SHIPMENT. THE CARRIER'S LIABILITY SHALL BE LIMITED TO THE DECLARED VALUE OF THE SHIPMENT.

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PLEASE REFER TO BILL OF LADING NUMBER FOR SHIPMENT STATUS / INQUIRIES  
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1746040

**AERO DESIGN LTD.**

2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

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Fax: 403-250-8333

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29 April, 2009

Transport Canada  
Aircraft Certification Division  
800-1601 Airport Road  
Calgary, Alberta  
T2E 6Z8

Attn: Jack Staal

TCCA File : SH00-48

Re: FAA STC Revision Application for Bell 407 &amp; 206L series Helicopter Cargo Baskets

Jack,

Please forward the following documents to the appropriate office of the FAA:

FAA STC Application Form	8110.12	
Modification Approval Request Application Form	MOD698	Rev. 0
Transport Canada Supplemental Type Certificate (copy)	SH00-48	Issue 7
FAA Supplemental Type Certificate (copy)	SR02253NY	Apr.19/2006
Compliance Program	CP492	Rev. 3
Compliance Program	CP493	Rev. 2
Compliance Program	CP606	Rev. 0
Compliance Program	CP698	Rev. 0
Compliance Program	CP766	Rev. 0
Compliance Program	CP800-2	Rev. 0
Document Control List (407 Provisions)	DCL700	Rev. 1
Instructions for Continued Airworthiness	ICA 700.90	Rev. 0
Flight Manual Supplement	FMS 700.91	Rev. 0
Installation Drawing	60602	Rev. 0
Document Control List (407 Low-Mounted Fixed)	DCL606	Rev. 3
Instructions for Continued Airworthiness	ICA 492.90	Rev. 1
Flight Manual Supplement	FMS 606.01	Rev. 2
Installation Drawing	60601	Rev. 2
Document Control List (407 High-Mounted Fixed)	DCL606-1	Rev. 0
Instructions for Continued Airworthiness	MI 606.01	Rev. 2
Flight Manual Supplement	FMS 606.01	Rev. 1
Installation Drawing	60603	Rev. 0
Document Control List (407 Low-Mounted Q-Release)	DCL701	Rev. 3
Instructions for Continued Airworthiness	ICA 698.90	Rev. 1
Flight Manual Supplement	FMS 701.90	Rev. 2
Installation Drawing (Q-R Basket)	70101	Rev. 3
Installation Drawing (Provisions)	70102	Rev. 0
Service Instructions (Sliding Door Modification)	SI698.91	Rev. 0
Document Control List (407 & 206L High-Mounted Q-R)	DCL766-1	Rev. 0
Instructions for Continued Airworthiness	ICA 766.90	Rev. 0



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Tel: 403-250-8027

Fax: 403-250-8333

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Flight Manual Supplement (407)	FMS 766.91	Rev. 0
Flight Manual Supplement (206L series)	FMS 766.92	Rev. 0
Installation Drawing	76601	Rev. 0
Document Control List (206L series Provisions)	DCL493	Rev. 6
Instructions for Continued Airworthiness	ICA 493.90	Rev. 0
Flight Manual Supplement	FMS 493.01	Rev. 0
Installation Drawing	49301	Rev. 2
Document Control List (206L series Lo-Mounted Fixed)	DCL492	Rev. 6
Instructions for Continued Airworthiness	ICA 492.90	Rev. 1
Flight Manual Supplement	FMS 492.01	Rev. 2
Installation Drawing	49201	Rev. 3
Document Control List (206L Low-Mounted Q-Release)	DCL702	Rev. 2
Instructions for Continued Airworthiness	ICA 698.90	Rev. 1
Flight Manual Supplement	FMS 702.90	Rev. 2
Installation Drawing (QR Basket)	70201	Rev. 3
Installation Drawing (Provisions)	70202	Rev. 0
Document Control List (Quick Release Step)	DCL800-2	Rev. 0
Instructions for Continued Airworthiness	ICA 800.90	Rev. 2
Installation Drawing	80002	Rev. 0
Document Control List (Auxiliary Step – All models)	DCL623	Rev. 1
Installation Drawing	62301	Rev. 1
Document Control List (Basket Modifications)	DCL704	Rev. 1
Document Control List (Fixed Cargo Basket Assembly)	DCL492-1	Rev. 1
Document Control List (Quick-Release Basket Ass'y)	DCL698-1	Rev. 1
Document Control List (Q-R Mounting Beams)	DCL698-2	Rev. 3
Document Control List (High-Mount Basket Assembly)	DCL766-2	Rev. 0
Document Control List (Step Assembly)	DCL800-12	Rev. 0
Engineering Report	ER 800.02	Rev. 0
Engineering Report	ER 766.01	Rev. 0
Engineering Report	TP 766.02	Rev. 0
Engineering Report	ER 704.02	Rev. 0
Engineering Report	ER 698.01	Rev. 0
Engineering Report	ER 698.02	Rev. 0
Engineering Report	TP 698.03	Rev. 0
Engineering Report	ER 698.04	Rev. 0
Engineering Report	ER 623.01	Rev. 0
Engineering Report	ER 606.01	Rev. 0
Engineering Report	ER 606.02	Rev. 0
Engineering Report	ER 606.03	Rev. 0
Engineering Report	TR 606.04	Rev. 0
Engineering Report	TR 606.05	Rev. 0
Engineering Report	ER 493.01	Rev. 0
Engineering Report	ER 493.03	Rev. 1

**AERO DESIGN LTD.**

2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027

Fax: 403-250-8333

www.aerodesign.ca

Engineering Report  
Engineering Report  
Engineering Report  
Engineering Report  
Engineering Report  
Engineering Report

ER 492.01  
ER 492.02  
ER 492.03  
ER 492.04  
ER 362.02  
ER 261.02

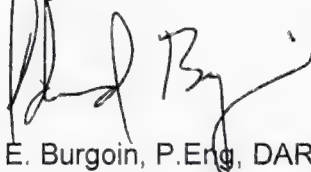
Rev. 0  
Rev. 0  
Rev. 0  
Rev. 0  
Rev. 2  
Rev. 0

- The documents below are on attached the CD-ROM -

## Drawings:

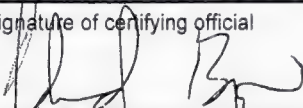
80010	69810	60620	49205	49311
80020	69811	60621	49207	49312
	69812	60622	49208	
76610	69821	60624	49209	36255
76611	69822	60630	49210	36261
76621	69823	60631	49211	36262
76622	69824	60632	49212	36271
76623	69825	60640	49213	36272
76625	69826	60641	49214	36273
76630	69827	60642	49215	36274
	69830	60643	49216	36275
70401	69831	60644	49217	36277
70402		60646	49218	36278
70403	70404	60647	49221	36280
	70405	60648	49222	
		60649		

Regards,



E. Burgoin, P.Eng, DAR 290M

Encl.

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		FORM APPROVED O.M.B. No. 04-R0078
<b>APPLICATION FOR TYPE CERTIFICATE, PRODUCTION CERTIFICATE, OR SUPPLEMENTAL TYPE CERTIFICATE</b>		
1. Name and address of applicant Aero Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, T2E 6R7 Canada	2. Application made for - <input type="checkbox"/> Type Certificate <input type="checkbox"/> Production Certificate <input checked="" type="checkbox"/> Supplemental Type Certificate	3. Product involved <input checked="" type="checkbox"/> Aircraft <input type="checkbox"/> Engine <input type="checkbox"/> Propeller
<b>4. TYPE CERTIFICATE</b> (Complete item 4a below)		
a. Model designation(s) (All models listed are to be completely described in the required technical data, including drawings representing the design, material, specifications, construction, and performance of the aircraft, aircraft engine, propeller which is the subject of this application.)		
<b>5. PRODUCTION CERTIFICATE</b> (Complete items 5a-c below. Submit with this form, in manual form, one copy of quality control data or changes thereto covering new products, as required by applicable FAR.)		
a. Factory address (If different from 1 above)	b. Application is for - <input type="checkbox"/> New Production Certificate <input type="checkbox"/> Additions to Production Certificate (Give P.C. No.)	P.C. No.
c. Applicant is holder of or a licensee under a Type Certificate or a Supplemental Type Certificate (Attach evidence of licensing agreement and give certificate number)		T.C./S.T.C. No.
<b>6. SUPPLEMENTAL TYPE CERTIFICATE</b> (Complete items 6a-d below)		
a. Make and model designation of product to be modified Bell Helicopter (Textron) Model 206L series, 407 (TCDS: H2SW)		
b. Description of modification Revision to FAA STC SR02253NY, Installation of External Cargo Basket, Quick Release Provisions, and Step Provisions for mounting the Cargo Basket are installed by replacement of the landing gear saddles, with new saddles that incorporate additional hardware. Support beams attach to the fasteners in the provisions. The steel frame and mesh basket attaches to the support beams, to carry cargo externally. The basket can be mounted and removed from the beams without tools. Different cargo basket and support beam combinations are available for baskets that mount "high" beside the fuselage, or "low" between the cross-tube legs of the landing gear. Optional Steps attach to the same provisions provided for the Cargo Baskets.		
c. Will data be available for sale or release to other persons? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		d. Will parts be manufactured for sale? (Ref. FAR 21.303) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<b>7. CERTIFICATION</b> - I certify that the above statements are true.		
Signature of certifying official 	Title E. Burgoin DAR 290M (AERO Design Ltd.)	Date 29 April, 2009

D. LIMITED STC/STA REVISION	<input type="checkbox"/>	LSTC/LSTA No.
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE	<input type="checkbox"/>	
F. F.A.A. STC REVISION	<input checked="" type="checkbox"/>	STC No. SR02253NY
G. FAMILIARIZATION OF F.A.A. STC	<input type="checkbox"/>	STC No.
H. REPAIR DESIGN APPROVAL (RDC)	<input type="checkbox"/>	
I. PARTS DESIGN APPROVAL (PDA)	<input type="checkbox"/>	

4. TITLE OF MODIFICATION OR REPAIR:

Quick Release Cargo Basket Installation

5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR:

Installation of Cargo Basket on side of the helicopter. The mounting provisions are aluminum saddles that replace the landing gear attachment fittings. Support beams for the basket are attached to the fittings. The Cargo Basket can be installed and removed from the beams without tools. This revision incorporates all design changes and revised substantiating data for all models and configurations. See SH00-48 for configurations.

6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:

A. TA NO. H-92      B. TC No. H2SW      C. OTHER \_\_\_\_\_

7. PROPOSED BASIS OF APPROVAL:

A. SAME AS TA ☐      B. SAME AS TC ☒      C. OTHER ☐ (Please specify) \_\_\_\_\_

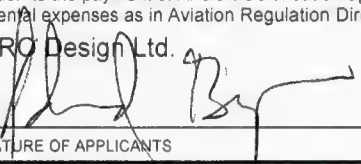
8. DOCUMENTATION CHECKLIST	REQUIRED		FOR DOT USE ONLY		
			RECEIVED		
	YES	NO	YES	NO	DATE
COMPLIANCE PROGRAM	X				
MASTER DRAWING LIST	X				
FLIGHT MANUAL SUPPLEMENT	X				
MAINTENANCE MANUAL SUPPLEMENT		X			
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS	X				
ENGINEERING REPORTS	X				
DESIGN DRAWINGS		X			
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS	X				
ELECTRICAL LOAD ANALYSIS		X			
DRAFT STC, LSTC OR RDA		X			
WEIGHT AND MOMENT CHANGE	X				
FLIGHT TEST DATA	X				
OTHER (Specify)		X			

9. APPLICANT'S REMARKS:

STC based on Transport Canada STC # SH00-48 issue 7

10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4.

AERO Design Ltd.

PER: 

SIGNATURE OF APPLICANTS

Consultant

TITLE

13 April, 2009

DATE

11.

SIGNATURE OF REGIONAL ENGINEER

DATE



Canadian  
Freightways  
PRO NO.  
427-444662

Canadian  
Freightways

Epic Express ClickExpress

A DIVISION OF 4186401 CANADA INC.  
NIR # R-569319-8

www.canadianfreightways.com

www.epicexpress.com

www.goclickexpress.com

1-888-868-7923

STRAIGHT BILL OF LADING - NOT NEGOTIABLE  
CONNAISSEMENT NOMINATIF - NON NEGOCIABLE

DATE

20 APRIL 2009

SHIPPER'S NUMBER N° DE L'EXPÉDITEUR

110-0769576

BILL OF LADING NUMBER N° DE CONNAISSEMENT

PURCHASE ORDER NUMBER N° D'ORDRE D'ACHAT

SHIPPER ACCOUNT NUMBER N° DE COMPTE DE L'EXPÉDITEUR

CONSIGNEE ACCOUNT NUMBER N° DE COMPTE DU DESTINATAIRE

SHIPPER (FROM) / EXPÉDITEUR (ORIGINE)

NERO DESIGN LTD.

STREET / RUE

2013-39TH AVE N.E.

CITY/PROVINCE / VILLE/PROVINCE

CHICAGO IL

POSTAL CODE / CODE POSTAL

60607

CONSIGNEE (TO) / DESTINATAIRE (DESTINATION)

PINE TREE HELICOPTER LTD.

STREET / RUE

100-4245 HANCAH ROAD

CITY/PROVINCE / VILLE/PROVINCE

PRINCE GEORGE BC

POSTAL CODE / CODE POSTAL

V2N 1A6

ROUTING ROUTE

SPECIAL INSTRUCTIONS DIRECTIVES SPÉCIALES

CALL DAN (250) 963-5000

CUSTOM SERVICES/Services Personnalisés:

(Additional charges will apply / Des frais supplémentaires s'appliqueront.)

Refer to www.cfmvt.com for service availability from your area.  
If a custom service is not selected, this shipment will move according to CF Managing Movement regular service standards.  
Consultez www.cfmvt.com pour connaître les services offerts dans votre région.  
Si un service personnalisé n'est pas choisi, l'envoi sera livré selon les normes de service régulier CF Managing Movement.

Quote Number: /  
Numéro de devis

Early Morning Delivery Service  
Livraisons Matinales

before 10:30 am / avant 10 h 30

before 9:00 am / avant 9 h

before 7:00 am / avant 7 h

Shortcut  
Service accéléré

Urgent/  
Service Urgent

Quote number required prior to shipping. Please  
call our Business Center 1-888-868-7923

Le numéro de devis est requis pour effectuer un  
envoi. Veuillez communiquer avec le centre de  
service à la clientèle au 1 888 879-3742.

Enter Urgent quote number

Entrer le numéro de Soumission urgente.

Air /  
Service air

Overnight/  
Le lendemain

Second Day/  
Le surlendemain

3 - 5 Day /  
3 - 5 Jours

Air 100 /  
Air 100

Heated Service  
Required /  
Acheminement  
par camion  
chauffé

Enter quote number in space above /  
Indiquer le numéro de devis dans l'espace ci-dessus.

PIECES  
PIÈCES

DESCRIPTION OF ARTICLES AND SPECIAL MARKS  
DESCRIPTION DES ARTICLES ET MARQUES SPÉCIALES

NMFC  
Classification NMFC

CLASS  
CLASSE

1 CARGO BASKET FOR  
HELICOPTER

80

WEIGHT (LBS)  
POIDS (LB)

FREIGHT CHARGES  
FRAIS DE TRANSPORT

SHIPPER TO CHECK  
A POINTER PAR L'EXPÉDITEUR

PREPAID / PORT PAYÉ

COLLECT / PORT DÙ

THIRD PARTY / TIERS

If not indicated, shipment  
will automatically move collect.  
Si aucune directive n'est  
donnée, l'expédition se fera  
à port dû.

C.O.D.  
PAIEMENT À LA LIVRAISON

AMOUNT / MONTANT

\$

INDICATE HERE IF SHIPPED AT  
SHIPPER'S RISK OF DAMAGE  
INDIQUER ICI SI LA  
MARCHANDISE EST  
EXPÉDIÉE AU RISQUE  
DE L'EXPÉDITEUR

C.O.D. FEE / FRAIS DE PAIEMENT  
À LA LIVRAISON

PREPAID / PORT PAYÉ

COLLECT / PORT DÙ

DANGEROUS GOODS DOCUMENTS ATTACHED

LES DOCUMENTS DES MARCHANDISES DANGEREUSES

YES

OUI

NO

NON

EMERGENCY RESPONSE TELEPHONE NO.  
N° DE TEL D'INTERVENTION D'URGENCE

TYPE OF PLACARD  
TYPE DE PLAQUE DE DANGER

QUANTITY  
QUANTITÉ

EMERGENCY RESPONSE PLAN NO.  
N° DE PROGRAMME D'INTERVENTION D'URGENCE

DECLARED VALUATION: MAXIMUM LIABILITY OF CARRIER IS \$2.00 PER LB. UNLESS  
DECLARED VALUATION STATES OTHERWISE. AN EXCESS VALUATION CHARGE OF 2%  
WILL BE ASSESSED ON VALUATION IN EXCESS OF \$5.00 PER LB.

À MOINS INDICATION CONTRAIRE DANS LA VALEUR DÉCLARÉE, LA RESPONSABILITÉ  
MAXIMALE DU TRANSPORTEUR EST DE 4.41 \$ PAR KILOGRAMME (2.00 \$ PAR LB). DES  
FRAIS DE VALEUR EXCÉDENTAIRE DE 2 % SERONT CALCULÉS SUR LES VALEURS EXCÉDANT  
11.00 \$ PAR KILOGRAMME (5.00 \$ PAR LIVRE).

DIMENSIONS

TOTAL CUBIC FEET / NOMBRE TOTAL DE PIEDS CUBES

30" x 24" x 24"

27

NOTICE OF CLAIM: (a) No carrier is liable for loss, damage or delay to any goods under the Bill of Lading unless notice thereof setting out particulars of the origin, destination and date of shipment of the goods and the estimated amount claimed in respect of such loss, damage or delay is given in writing to the originating carrier or the delivering carrier within sixty (60) days after the delivery of the goods, or, in the case of failure to make delivery, within nine (9) months from the date of shipment. (b) The final statement of the claim must be filed within nine (9) months from the date of shipment together with a copy of the paid freight bill. (c) Carrier(s) are not liable for goods shipped as "SHIPPER'S RISK", "SHIPPER'S LOAD & COUNT" and/or if not properly packaged or crated. (d) The agreed value on glass and/or fragile goods, personal effects and/or used commodities does not exceed \$0.10 per pound, unless otherwise specified.

RECEIVED at the point of origin on the date specified, from the consignor mentioned herein, the property herein described, in apparent good order, except as noted (contents and conditions of contents of package unknown) marked, consigned and destined as indicated below, which the carrier agrees to carry and to deliver to the consignee at the said destination, if on its own authorized route or otherwise to cause to be carried by another carrier on the route to said destination, subject to the rules and conditions of carriage set out in the back of this bill of lading.

It is mutually agreed, as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service, to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, including conditions set forth by the carrier of the goods, in power of attorney of lading, which are hereby agreed by the consignor and accepted for himself and his assigns.

The bill of lading for the goods described in the bill of lading is governed by regulation in force in the jurisdiction at the time and place of shipment and is subject to the conditions of carriage set out in the back of this bill of lading.

Debtor Responsibility: The carrier reserves the right to seek payment from the shipper on any balances owed where a Freight Forwarder Broker or Logistics Company fails to meet the terms of payment indicated.

AVIS DE RÉCLAMATION: (a) Le transporteur n'est responsable de pertes, de dommages ou de retards aux marchandises transportées qui sont décrites au connaissement, qu'à la condition qu'un avis écrit précisant l'origine des marchandises, leur destination, leur date d'expédition et le montant approximatif réclamé en réparation de la perte, des dommages ou du retard ne soit signifié au transporteur initial ou au transporteur de destination, dans les soixante (60) jours suivant la date de la livraison des marchandises ou dans les cas de non-livraison, dans un délai de neuf (9) mois suivant la date de l'expédition. (b) La présentation de la réclamation finale accompagnée d'une preuve du paiement des frais de transport doit être soumise au transporteur dans un délai de neuf (9) mois suivant la date de l'expédition. (c) Le ou les transporteurs n'assument aucune responsabilité pour les marchandises expédiées au « RISQUE DE L'EXPÉDITEUR », les « ENVOIS CHARGÉS ET VÉRIFIÉS PAR L'EXPÉDITEUR » et/ou les marchandises emballées ou mises en caisse de façon inappropriée. (d) La valeur agréée pour le transport des marchandises en verre et/ou fragiles, les effets personnels et/ou les denrées usagées n'excède pas 0.22 \$ par kilogramme (0.10 \$ par livre).

REQU au point d'origine, à la date spécifiée et de l'expédition mentionnée aux présentes les marchandises ci-dessus décrites en bon état apparent (le contenu des colis et sa condition étant inconnus) marquées, consignées et destinées tel que ci-après mentionné, que le transporteur consent à transporter et à délivrer à leur consignataire au point de destination si ce point se trouve sur sa route qu'il est autorisé à desservir, sinon à faire transporter et de livrer par un autre transporteur aux taux et à la classification en vigueur à la date de l'expédition.

Il est mutuellement convenu que chaque transporteur transportant lesdites marchandises en tout et en partie sur le parcours entier ou une portion quelconque de celui-ci jusqu'à destination et que tout intéressé à l'expédition pour tout service à effectuer en vertu des présentes est sujet à toutes les conditions imprimées ou écrites non prohibées par la loi, incluant les conditions contenues au verso des présentes qui sont acceptées par l'expéditeur pour lui-même et ses ayants droits. Le Contrat de transport des marchandises énumérées dans le connaissement est régi par les règlements en vigueur dans le territoire d'origine, l'expédition effectuée à la date de cet envoi et est assujéti aux conditions stipulées dans ces règlements.

Responsabilité du débiteur: Le transporteur réserve le droit de percevoir tout solde dû auprès de l'expéditeur lorsqu'un transitaire, un courtier de transport ou une société de logistique omet de respecter les conditions de paiement indiquées.

PER / PAR	PER / PAR	UNIT NUMBER / NUMÉRO D'UNITÉ	DATE
NERO DESIGN LTD.	100-4245 HANCAH ROAD	3	20 APRIL 2009
SHIPPER / EXPÉDITEUR	CARRIER / TRANSPORTEUR	TIME	
	59133		

GEN-0001 (01-05)

For shipment tracking visit: Pour effectuer un suivi de l'envoi, visitez [www.cfmvt.com](http://www.cfmvt.com)

A TransForce Company

Shipper Copy / Copie-expéditeur

NUMBER OF PIECES RECEIVED  
NOMBRE DE PIÈCES REÇUES







Transport Canada Transports Canada

## Department of Transport

# Supplemental Type Certificate

This approval is issued to:

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada T2E 6R7

Number: SH00-48

Issue No.: 7

Approval Date: December 08, 2000

Issue Date: April 07, 2009

Responsible Office:

Prairie and Northern

Aircraft/Engine Type or Model:

BELL 206L, 206L-1, 206L-3, 206L-4, 407

Canadian Type Certificate or Equivalent:

BELL 206L, 206L-1, 206L-3, 206L-4, 407 H-92

Description of Type Design Change:

Installation of Cargo Basket / External Attachment  
Provisions/ Auxiliary step/ Quick Release Step

Installation/Operating Data,  
Required Equipment and Limitations:

**Bell 407 only:****407 Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 3 May 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)

**Conditions:** This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.



R.A. Goossens  
For Minister of Transport

Canada



*(Continuation Sheet)*

Number: SH00-48 Issue 7

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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**Bell 407 only: (Continued)****407 Configuration B - External Cargo Basket (Low Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)



*(Continuation Sheet)*

Number: SH00-48 Issue 7

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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**Bell 407 only:** (Continued)**407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):**

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 3, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 407 Configuration E - External Cargo Basket Installation High Mounted Quick Release**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)

*(Continuation Sheet)*

Number: SH00-48 Issue 7

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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 206L, L-1, L-3, L-4 only:

**206L Series Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

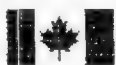
Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)

*(Continuation Sheet)*

Number: SH00-48 Issue 7

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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**206L Series Configuration B - External Cargo Basket (Low Mounted):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List: DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

**206L Series Configuration C - External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 2, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)

*(Continuation Sheet)*

Number: SH00-48 Issue 7

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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**206L Series Configuration D - External Cargo Basket Installation (High Mounted Quick Release):**

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push-out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada accepted, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

**All Models (Bell 206L series and 407)****Auxiliary Step Installation:**

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 January 2005, or later approved revision.

The auxiliary step is optional and is not required with installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 7)



*(Continuation Sheet)*

Number: SH00-48 Issue 7

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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**All Models (Bell 206L series and 407)****Cargo Basket Modifications:**

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

**Quick Release Step Installation:**

Installation of the Low Mounted Quick Release Cargo Basket (407 - Configuration D; 206L - Configuration C) is required prior to installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List DCL800-2, Rev. 0, dated 2 December 2008, or later approved revision.


The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2, dated 2 December 2008, or later accepted revision, is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27, amendment 27-30.

— End —


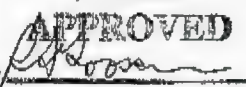
# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>		
80002	Quick Release Step Installation	0
ICA800.90	Instructions for Continued Airworthiness	2
FMS701.90	Flight Manual Supplement (Bell 407)	2
FMS702.90	Flight Manual Supplement (Bell 206L Series)	2
<b>FABRICATION DOCUMENTS</b>		
DCL800-12	Document Control List for Quick Release Step	0
<b>ENGINEERING DOCUMENTS</b>		
<b>APPROVAL:</b>		
 Transport Canada AIRCRAFT CERTIFICATION DIVISION APPROVED By <i>[Signature]</i> Appl No. <u>SH00-48</u> Appl Date <u>00-12-08</u> Issue No. <u>7</u> Issue Date <u>09-04-07</u> YY-MM-DD		ORIGINAL DATE: 2 December, 2008 REVISION DATE:
SHEET 1 OF 1		<b>AERO DESIGN LTD.</b> 2013 - 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 www.aerodesign.ca
<b>DCL800-2</b>		Rev. <b>0</b>


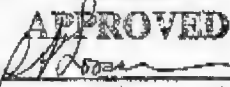
# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>  80010 80020	Step Assembly Step End Fabrication	1 0
<b>ENGINEERING DOCUMENTS</b>  ER800.02	Engineering Report	0

<b>APPROVAL:</b>  <b>Transport Canada</b> <b>Transports Canada</b> <b>AIRCRAFT CERTIFICATION DIVISION</b> <b>APPROVED</b> By  Appl No. <u>5H00-48</u> Appl Date <u>00-12-08</u> Issue No. <u>7</u> Issue Date <u>09-04-07</u> <small>YY-MM-DD</small>		ORIGINAL DATE: 2 December, 2008  REVISION DATE:	<b>AERO DESIGN LTD.</b> 2013 - 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 www.aerodesign.ca
SHEET 1 OF 1		<b>Bell 206L Series &amp; 407 Quick Release Step Fabrication</b>	
<b>DCL800-12</b>		Rev.  <b>0</b>	

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
69830	Forward Beam Fabrication	3
69831	Aft Beam Fabrication	3
<b>ENGINEERING DOCUMENTS</b>		
ER698.02	Engineering Report	0
TP698.03	Test Plan	0
ER698.04	Engineering Report	0
<b>APPROVAL:</b>		
 Transport Canada <b>AIRCRAFT CERTIFICATION DIVISION</b> <b>APPROVED</b> By  Appl No. <u>SH00-48</u> Appl Date <u>00-12-08</u> Issue No. <u>7</u> Issue Date <u>09-04-07</u> <small>YY-MM-DD</small>		<b>AERO DESIGN LTD.</b> 2013 - 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
ORIGINAL DATE: 3 May, 2008		<b>Quick Release Mounting Beams</b>
REVISION DATE: 2 December, 2008		
SHEET 1 OF 1		Rev.
<b>DCL698-2</b>		<b>3</b>



AERO DESIGN LTD.

FMS702.90

**BELL 206L SERIES****ROTORCRAFT FLIGHT MANUAL SUPPLEMENT**

for the

**INSTALLATION of the AERO DESIGN  
QUICK RELEASE CARGO BASKET  
AND/OR QUICK RELEASE STEP**Supplemental Type Certificate No. SH00-48

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.


The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Bell 206L Series when fitted with the Quick Release Cargo Basket or Quick Release Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.



Revision 2  
17 July, 2008

**APR 07 2009** Page 1  
**TRANSPORT CANADA APPROVED**

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>		
70201	Quick Release Cargo Basket Installation	3
70202	Quick Release Mounting Provisions Installation	0
ICA698.90	Instructions for Continued Airworthiness	1
FMS702.90	Flight Manual Supplement	2
<b>FABRICATION DOCUMENTS</b>		
DCL698-1	Document Control List for Quick Release Cargo Basket	1
DCL698-2	Document Control List for Beams	3
<b>ENGINEERING DOCUMENTS</b>		
<div> <div> <b>APPROVAL:</b>   Transport Canada <div> <b>AIRCRAFT CERTIFICATION</b>  DIVISION  <b>APPROVED</b>  By <i>[Signature]</i>  Appl No. <u>5400-48</u>  Appl Date <u>00-12-08</u>  Issue No. <u>7</u>  Issue Date <u>09-04-07</u>  YY-MM-DD </div> </div> <div> ORIGINAL DATE:  10 May, 2006  REVISION DATE:  2 December, 2008 </div> <div> <b>AERO DESIGN LTD.</b>  2013 - 39<sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7  Ph. (403) 250-8027  Fax. (403) 250-8333 </div> </div>		
SHEET 1 OF 1		<b>Bell 206L Series</b> <b>Quick Release Cargo Basket</b> <b>Installation</b>
<b>DCL702</b>		Rev. <b>2</b>

AERO DESIGN LTD.

FMS701.90

## BELL 407

**ROTORCRAFT FLIGHT MANUAL SUPPLEMENT**  
for the  
**INSTALLATION of the AERO DESIGN**  
**QUICK RELEASE CARGO BASKET**  
**AND/OR QUICK RELEASE STEP**

Supplemental Type Certificate No. SH00-48

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.




The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Bell 407 when fitted with the Quick Release Cargo Basket or Quick Release Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.



Revision 2  
17 July, 2008

**APR 07 2009** Page 1  
**TRANSPORT CANADA APPROVED**

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION										
<b>INSTALLATION DOCUMENTS</b>												
70101	Quick Release Cargo Basket Installation	3										
70102	Quick Release Mounting Provisions Installation	0										
ICA698.90	Instructions for Continued Airworthiness	1										
FMS701.90	Flight Manual Supplement	2										
SI698.91	Service Instructions - Sliding Door Modification	0										
<b>FABRICATION DOCUMENTS</b>												
DCL698-1	Document Control List for Quick Release Cargo Basket	1										
DCL698-2	Document Control List for Beams	3										
<b>ENGINEERING DOCUMENTS</b>												
<table border="1"> <tr> <td colspan="2"> <b>APPROVAL:</b>   Transport Canada  <b>AIRCRAFT CERTIFICATION DIVISION</b>  <b>APPROVED</b>  By <i>[Signature]</i>  Appl No. <u>5100-48</u>  Appl Date <u>00-12-08</u>  Issue No. <u>7</u>  Issue Date <u>09-04-07</u>  YY-MM-DD </td> <td> ORIGINAL DATE:  10 May, 2006    REVISION DATE:  2 December, 2008 </td> <td> <b>AERO DESIGN LTD.</b>  2013 - 39<sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7  Ph. (403) 250-8027  Fax. (403) 250-8333 </td> </tr> <tr> <td colspan="2"> SHEET 1 OF 1 </td> <td> <b>Bell 407</b>  <b>Quick Release Cargo Basket</b>  <b>Installation</b> </td> </tr> <tr> <td colspan="2"> <b>DCL701</b> </td> <td> Rev.  <b>3</b> </td> </tr> </table>			<b>APPROVAL:</b>  Transport Canada <b>AIRCRAFT CERTIFICATION DIVISION</b> <b>APPROVED</b> By <i>[Signature]</i> Appl No. <u>5100-48</u> Appl Date <u>00-12-08</u> Issue No. <u>7</u> Issue Date <u>09-04-07</u> YY-MM-DD		ORIGINAL DATE: 10 May, 2006  REVISION DATE: 2 December, 2008	<b>AERO DESIGN LTD.</b> 2013 - 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333	SHEET 1 OF 1		<b>Bell 407</b> <b>Quick Release Cargo Basket</b> <b>Installation</b>	<b>DCL701</b>		Rev. <b>3</b>
<b>APPROVAL:</b>  Transport Canada <b>AIRCRAFT CERTIFICATION DIVISION</b> <b>APPROVED</b> By <i>[Signature]</i> Appl No. <u>5100-48</u> Appl Date <u>00-12-08</u> Issue No. <u>7</u> Issue Date <u>09-04-07</u> YY-MM-DD		ORIGINAL DATE: 10 May, 2006  REVISION DATE: 2 December, 2008	<b>AERO DESIGN LTD.</b> 2013 - 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333									
SHEET 1 OF 1		<b>Bell 407</b> <b>Quick Release Cargo Basket</b> <b>Installation</b>										
<b>DCL701</b>		Rev. <b>3</b>										





Transport  
Canada

Transports  
Canada

1100-9700 Jasper Avenue  
Edmonton, Alberta T5J 4E6

April 9, 2009

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada, T2E 6R7

Dear Sirs:

STC IN  
BINDER

Your file      Votre référence  
800-2

Our file      Notre référence  
C-08-1002  
SH00-48

**SUBJECT:      REVISION TO SUPPLEMENTAL TYPE CERTIFICATE NO. SH00-48 – ISSUE 7  
DATED APRIL 07, 2009 – INSTALLATION OF CARGO BASKET/EXTERNAL  
ATTACHMENT PROVISIONS/AUXILIARY STEP/QUICK RELEASE STEP  
BELL 206L, 206L-1, 206L-3, 206L-4, 407 – ISSUED TO AERO DESIGN LTD.**

This Supplemental Type Certificate (STC) is issued in response to your application. Included with the STC are the documents bearing the original Transport Canada signatures.

The transfer of this SH00-48 in the name of another person requires the prior approval from the Minister in accordance with Canadian Aviation Regulations (CAR) 513.25.

The requirements of CAR 561 apply where parts are manufactured and offered for sale. The provisions of CAR 571.06(4) should also be consulted.

A Canadian holder is required to report any service problem experienced with their product. Therefore, should you become aware of any defect, malfunction or failure resulting from the design change, it is your responsibility to submit a Service Difficulty Report to Transport Canada in accordance with CAR V, Subpart 91.

Yours truly,

J. Staal  
Aircraft Certification Engineering Technologist  
Prairie and Northern Region  
Phone: 780-495-5227  
Facs: 780-495-7963

Encl.

**MSI 53 – Review of Supplemental Instructions for Continued Airworthiness**

**APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527**

**BLOCK 1**

<b>Name of the applicant for the design change approval:</b>	<b>Aero Design Ltd.</b>
<b>Description of the design change:</b>	<b>Installation of Quick Release Step on Bell 206L Series/407</b>
<b>Certification Basis of design change and revision date:</b>	<b>FAR 27, Amendment 27-30</b>
<b>CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:</b>	<b>Section 0-3 of Supplemental ICA (ICA 800.90)</b>
<b>CAR Standard 513.05 (1) (g) (iv): Installation Instructions:</b>	<b>Installation Drawing 80002</b>

**BLOCK 2**

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.2 (a) Manual(s)</b> (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Bell 206L/407 Maintenance Manuals, BHT-206L-MM BHT-206L1-MM BHT-206L3-MM BHT-206L4-MM BHT-407-MM	Supplemental ICA ref: Single Manual (ICA800.90)
<b>A527.2 (b) Practical arrangement</b> (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Bell 206L/407 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (a) Rotorcraft maintenance manual or section</b>		
<b>A527.3 (a) (1) (Introduction)</b> (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-1

**MSI 53 – Review of Supplemental Instructions for Continued Airworthiness**

<b>Regulatory Standard Reference Column 1</b>	<b>Design Approval Holder (DAH) ICA Reference Column 2</b>	<b>Applicant Means of Compliance Supplemental ICA Requirements Column 3</b>
<b>A527.3 (a) (2) (Description)</b> (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-5
<b>A527.3 (a) (3) Control &amp; Operation</b> (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (a) (4) Servicing</b> (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (b) Maintenance Instructions.</b>		
<b>A527.3 (b) (1) Scheduling</b> 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1

**MSI 53 – Review of Supplemental Instructions for Continued Airworthiness**

<b>Regulatory Standard Reference Column 1</b>	<b>Design Approval Holder (DAH) ICA Reference Column 2</b>	<b>Applicant Means of Compliance Supplemental ICA Requirements Column 3</b>
<b>A527.3 (b) (2) Troubleshooting</b> (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (b) (3) Removal/replacement</b> (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1, 25-2
<b>A527.3 (b) (4) General</b> (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: N/A
<b>A527.3 (c) Access</b> (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (d) Special inspections</b> (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
<b>A527.3 (e) Protective treatment</b> (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 3	Supplemental ICA ref: Section 5-3
<b>A527.3 (f) Fasteners, torque values, etc</b> (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 2	Supplemental ICA ref: Section 25-4
<b>A527.3 (g) Special tools</b> (g) A list of special tools needed.	ICA ref: N/A	Supplemental ICA ref: N/A




### MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

#### BLOCK 3


Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

<b>A527.4 AWL - Separate Section 1</b> The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 4	Supplemental ICA ref: Chapter 4
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#### BLOCK 4 – Applicant Statement of Compliance

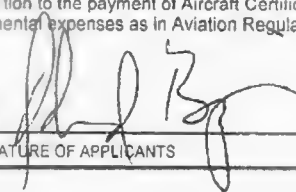

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.	
Applicants Signature: 	Date: December 2, 2008
Applicants Name: E. Burgoin, P.Eng, DAR 290M	

#### BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.	
Reviewer's Name: STAAL J	Phone # 780-495-5327
Signature: 	Date: 2009 Apr 07
Email: <u>Jack.staal@tc.gc.ca</u>	Mail Routing Symbol: RAED
NAPA Number C-08-1002	

## MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD800-2, Rev 5

<b>1. NAME AND ADDRESS OF APPLICANT:</b>		<b>2. IDENTIFICATION OF PRODUCT</b> <span style="float:right">C-08-1002</span>				
AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		MAKE:  Bell	MODEL:  206L Series, 407			
ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		SERIAL No.:  All Eligible	REGISTRATION:  All Eligible			
<b>3. REQUEST FOR:</b>						
A. SUPPLEMENTAL TYPE CERTIFICATE (STC)		<input type="checkbox"/>				
B. STC/STA REVISION		<input checked="" type="checkbox"/> STC/STA No. SH00-48				
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)		<input type="checkbox"/>				
D. LIMITED STC/STA REVISION		<input type="checkbox"/> LSTC/LSTA No.				
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE		<input type="checkbox"/>				
F. F.A.A. STC REVISION		<input type="checkbox"/> STC No.				
G. FAMILIARIZATION OF F.A.A. STC		<input type="checkbox"/> STC No.				
H. REPAIR DESIGN APPROVAL (RDC)		<input type="checkbox"/>				
I. PARTS DESIGN APPROVAL (PDA)		<input type="checkbox"/>				
<b>4. TITLE OF MODIFICATION OR REPAIR:</b> Quick Release Mounting Provisions Installation; Quick Release Basket Installation; Quick Release Step Installation						
<b>5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR:</b> Installation of external quick release mounting provisions, and installation of a cargo basket on those provisions. This revision adds a step that may be installed on the quick release provisions when the basket is removed.						
<b>6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:</b>						
A. TA NO. H-92		B. TC No.				
		C. OTHER				
<b>7. PROPOSED BASIS OF APPROVAL:</b>						
A. SAME AS TA <input checked="" type="checkbox"/>		B. SAME AS TC <input type="checkbox"/>				
		C. OTHER <input type="checkbox"/> (Please specify)				
<b>8. DOCUMENTATION CHECKLIST</b>		<b>REQUIRED</b>		<b>FOR DOT USE ONLY</b>		
				<b>RECEIVED</b>		
		YES	NO	YES	NO	DATE
COMPLIANCE PROGRAM		X				
MASTER DRAWING LIST		X				
FLIGHT MANUAL SUPPLEMENT		X				
MAINTENANCE MANUAL SUPPLEMENT			X			
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS		X				
ENGINEERING REPORTS		X				
DESIGN DRAWINGS			X			
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS		X				
ELECTRICAL LOAD ANALYSIS			X			
DRAFT STC, LSTC OR RDA			X			
WEIGHT AND MOMENT CHANGE		X				
FLIGHT TEST DATA			X			
OTHER (Specify)						
<b>9. APPLICANT'S REMARKS:</b>						
<b>10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4.</b>						
PER: 		Consultant		2 December, 2008		
SIGNATURE OF APPLICANTS		TITLE		DATE		
<b>11.</b>						
				2009 Apr 7		
SIGNATURE OF REGIONAL ENGINEER				DATE		



Department of Transport

# Supplemental Type Certificate

This approval is issued to:

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada T2E 6R7

**Number:** SH00-48

**Issue No.:** 6

**Approval Date:** December 08, 2000

**Issue Date:** January 30, 2008

**Responsible Office:**

Prairie and Northern

**Aircraft/Engine Type or Model:**

BELL 206L, 206L-1, 206L-3, 206L-4, 407

**Canadian Type Certificate or Equivalent:**

BELL 206L, 206L-1, 206L-3, 206L-4, 407 H-92

**Description of Type Design Change:**

Installation of Cargo Basket / External Attachment  
Provisions/Auxiliary step.

**Installation/Operating Data,  
Required Equipment and Limitations:**

**Bell 407 only:**

**407 Configuration A – External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 3 May 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)

**Conditions:** This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.



D.S. Austen  
For Minister of Transport

## TRANSFER ENDORSEMENT

A transfer of ownership requires a prior approval from the Minister.

The reissue of the certificate in the name of the transferee will be contingent upon a demonstration made by the new owner that he/she can fulfill the responsibilities of the holder as described in airworthiness manual chapter 513.

### TRANSFER OF OWNERSHIP

TO (NAME AND ADDRESS OF TRANSFEREE)

---

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FROM (NAME AND ADDRESS OF OWNER)

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TRANSFER PARTICULARS (LICENCE  
AGREEMENT, SALE OF RIGHTS, ETC.)

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DATE OF TRANSFER

---

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SIGNATURE  
(OF ORIGINAL OWNER)





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

---

**Bell 407 only:** (Continued)

**407 Configuration B – External Cargo Basket (Low Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration C – External Cargo Basket Installation (High Mounted Fixed):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit “push out” windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**Bell 407 only: (Continued)**

**407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):**

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 1, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 1, dated 9 November 2006, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 407 Configuration E - External Cargo Basket Installation (High Mounted Quick Release)**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)



NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 206L, L-1, L-3, L-4 only:**

**206L Series Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**206L Series Configuration B – External Cargo Basket (Low Mounted):**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

**206L Series Configuration C – External Cargo Basket Installation (Low Mounted Quick Release):**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 1, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 1, dated 9 November 2006, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)





NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**206L Series Configuration D – External Cargo Basket Installation (High Mounted Quick Release):**

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit “push-out” windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

**All Models (Bell 206L series and 407)****Auxiliary Step Installation:**

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 January 2005, or later approved revision.

The auxiliary step is optional and is not required with installation of Configuration B or C.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 amendment 27-30.

(continued on page 7)



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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**All Models (Bell 206L series and 407)**

**Cargo Basket Modifications:**

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

— End —

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
69830 69831	Forward Beam Fabrication Aft Beam Fabrication	2 2
<b>ENGINEERING DOCUMENTS</b>		
ER698.02 TP698.03 ER698.04	Engineering Report Test Plan Engineering Report	0 0 0
<b>APPROVAL:</b>		
 <p> <b>AIRCRAFT CERTIFICATION DIVISION</b>  <b>APPROVED</b>  By <u>D.S. Rusten</u>  Appr'l No. <u>SH00-48</u>  Appr'l Date <u>00-12-08</u>  Issue No. <u>6</u>  Issue Date <u>08-01-30</u>  YY-MM-DD </p>	ORIGINAL DATE 3 May, 2006  REVISION DATE: 28 September, 2007	<b>AERO DESIGN LTD.</b> 2013 - 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
	SHEET 1 OF 1	<b>Quick Release Mounting Beams</b>
	<div> <div><b>DCL698-2</b></div> <div>Rev. <b>2</b></div> </div>	

**AERO Design Ltd.**

**SERVICE INSTRUCTIONS**

**SI 698.91**

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**BELL 407**

**MODIFICATION TO SLIDING DOOR INSTALLATION TO  
ACCOMMODATE QUICK RELEASE MOUNTING PROVISIONS**

Prepared by: Jeff Clarke

Revision 0, 19 September, 2008

---

AERO Design Ltd.  
*Engineering Consultants*  
[www.aerodesign.ca](http://www.aerodesign.ca)

2013 – 39<sup>th</sup> Avenue N.E., Calgary, Alberta T2E 6R7  
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2.0	REFERENCE	3
3.0	ACCOMPLISHMENT INSTRUCTIONS	3

## 1.0 INTRODUCTION

These instructions apply to Bell 407 helicopters that are fitted with the Aeronautical Accessories Sliding Door Installation per Canadian STC SH96-66. Location of the Sliding Door bottom rail is highly dependent on the installer, and may interfere with Quick Release Provisions Installations supplied by Aero Design Ltd (70102-01 Low Mounted; 76601-01 High Mounted).

These instructions provide for the modification to the bottom rail of the Sliding Door Installation in order to install the Quick Release Cargo Basket Installation.

## 2.0 REFERENCE

Aero Design Ltd. Drawing 70102 (Low Mounted Provisions) or 76601 (High Mounted Basket)

Aero Design Ltd. Drawing 70001 (External Attachment Provisions Installation)

## 3.0 ACCOMPLISHMENT INSTRUCTIONS

1. Install External Attachment Provisions in accordance with drawing 70001.
2. Locate aft beam on aft attachment provisions. Thread AN6 bolt into one provision if possible.

Note: If both AN6-20A bolts can be installed without the aft beam interfering with the sliding door rail no modification to the sliding door rail is required. The beam may need to be slid as far right as possible on provisions.

3. Mark bottom sliding door rail at the forward edge of the beam.
4. Remove the door stop hardware from the aft end of the sliding door rail.

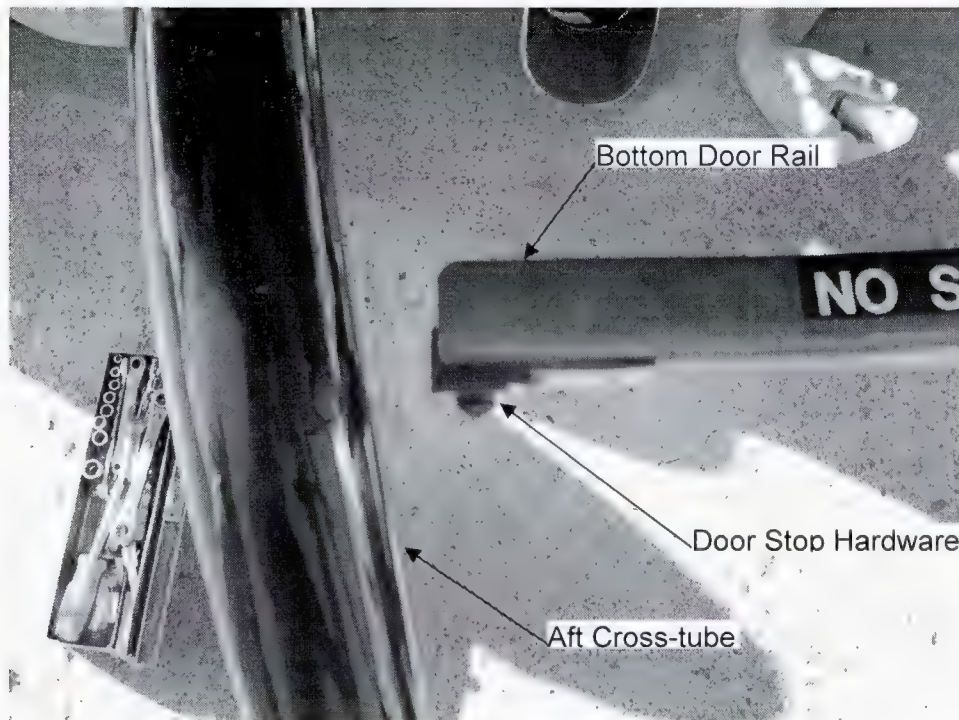


Figure 3.0.1 – Door Stop Hardware

5. Cut sliding door rail 0.5" forward of the mark made in step 3. Remove "NO STEP" placard if necessary.
6. Drill #9 (0.196) in aft end of sliding door rail to install stop hardware removed in step 4. Use door stop bracket to determine location.
7. Re-install stop hardware in new hole at the end of the sliding door rail. Install "NO STEP" placard (Aeronautical Accessories part number 099-094-114 or equivalent) if removed in step 5.

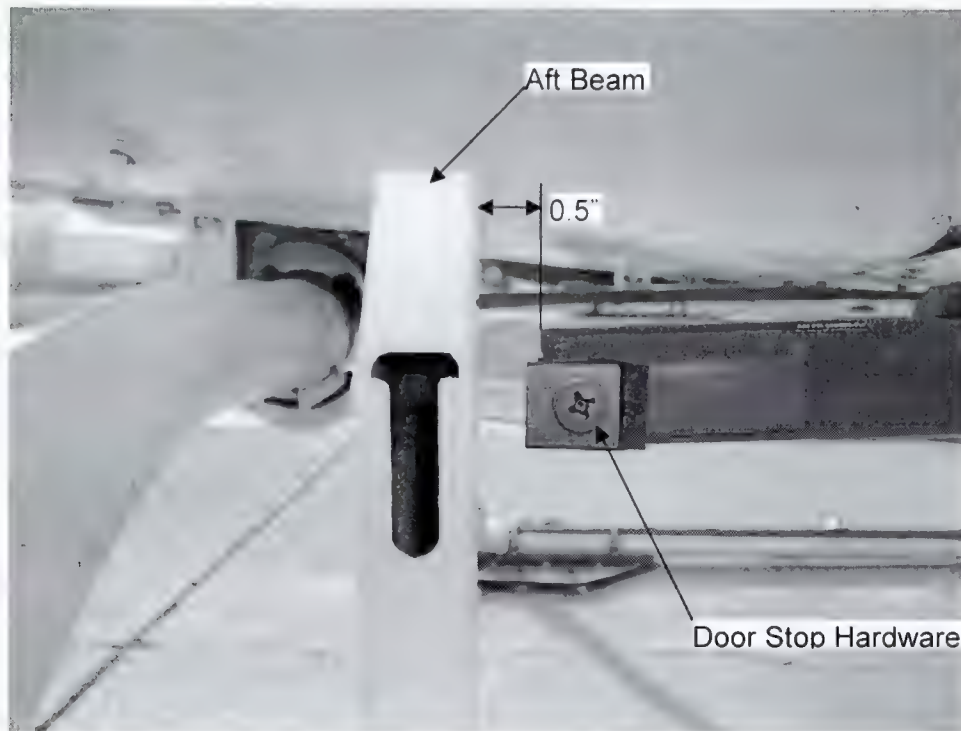


Figure 3.0.2 – Completed Modification  
(Low Mounted Quick Release Beam shown)

8. Install Quick Release Mounting Provisions in accordance with drawing 70102 or 76601 as applicable.

## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 698.90

---

### QUICK RELEASE CARGO BASKET

#### Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Cargo Basket assembled in accordance with AERO Design Ltd. Document Control List DCL698-1, Revision 0, and DCL698-2, Revision 0, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 0  
Date: 20 April, 2006

---

AERO Design Ltd.  
Engineering Consultants

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**RECORD OF REVISIONS**

Revision Number	Issue Date	Date Inserted	By
0			Original Issue

**LIST OF EFFECTIVE PAGES**

List of Revisions

Revision 0 (Original Issue) 20 April, 2006

List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	0
Revision Record/List of Effective Pages	2	0
Table of Contents	3	0
00-00-00	4-6	0
04-00-00	7	0
05-00-00	8-9	0
11-00-00	11	0
25-50-00	12-14	0

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## CHAPTER 0 – INTRODUCTION

### 0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Cargo Basket as described herein.

### 0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness  
LH - Left Hand  
RH - Right Hand

### 0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Cargo Basket. Requests for a copy may be made in writing to:

AERO Design Ltd.  
2013 39<sup>th</sup> Avenue N.E.  
Calgary, Alberta  
T2E 6R7  
Fax: 403-250-8333  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### 0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

## 0-5 GENERAL DESCRIPTION

The cargo basket installation is a metal mesh basket installed to the side of the helicopter on beams attached to landing gear fittings with attachment provisions incorporated. The quick release basket allows for the installation and removal of the basket without tools, allowing a pilot operating in the field without maintenance support to install or remove the basket.

The basket itself is 75.75" long, 22.5" wide, and 17" high. It is made of a 4130 steel welded tubing structure, and lined with expanded steel mesh. The basket has a hinged lid with a self-locking handle.

The beams are steel tubing which attach to the landing gear fittings and stick out from the side of the helicopter. The quick release mechanism is built into the beams.

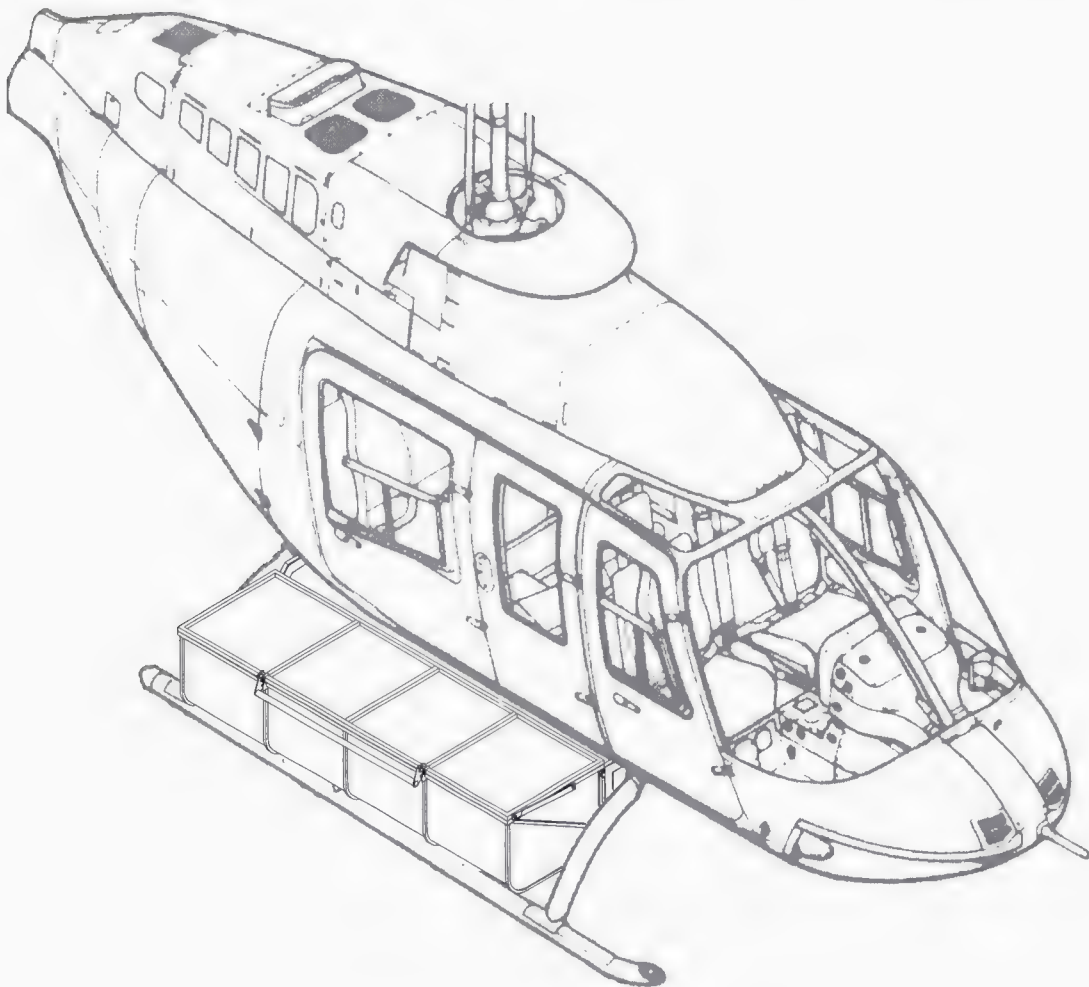


Figure 1 – Cargo Basket Installation



## 0-6 STRUCTURAL PROVISIONS

The External Attachment Provisions are installed on the helicopter in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407). That installation is separate from the basket installation. The External Attachment Provisions are not included in this ICA.

The external attachment provisions consist of replacement landing gear fittings that incorporate a barrel nut for installing equipment. Each fitting is bolted to the lower fuselage and landing gear with the same fasteners as used for the original fittings, as shown in Figure 2.

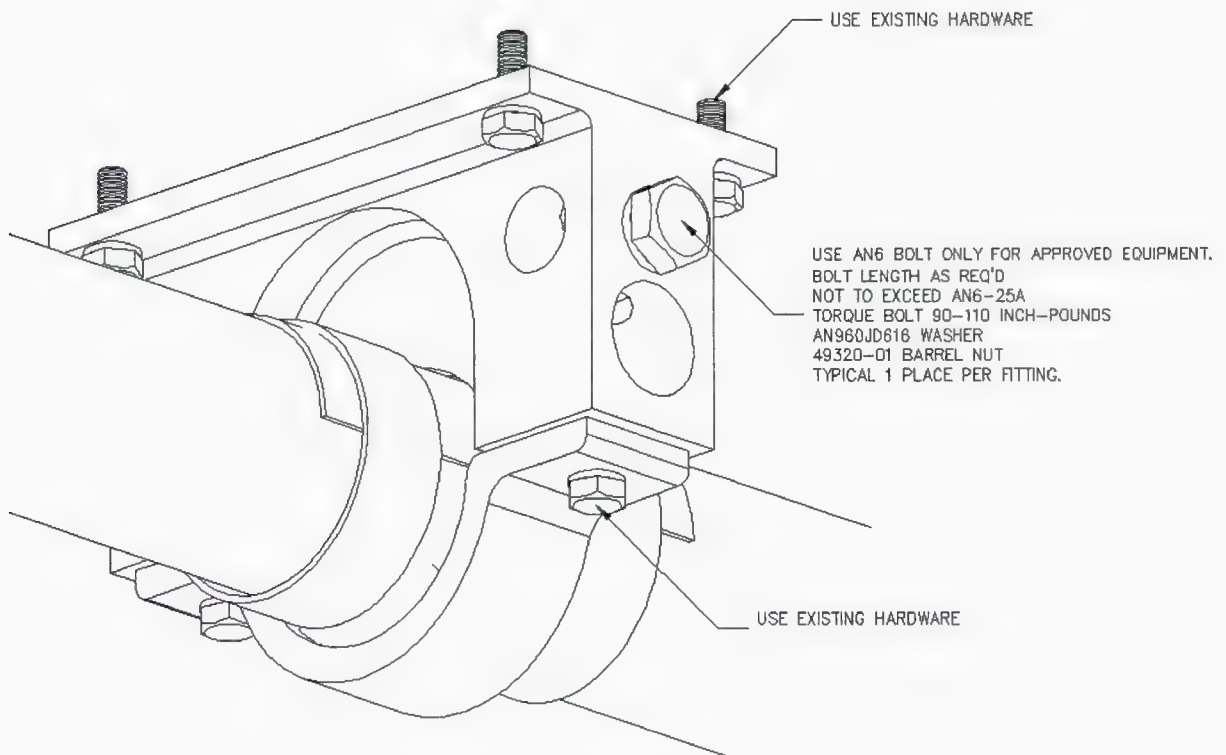


Figure 2 - Installation of External Attachment Provisions

## **CHAPTER 4 - AIRWORTHINESS LIMITATIONS**

The Airworthiness Limitations section is Transport Canada-approved and specifies maintenance required under Section 571 of the Canadian Aviation Regulations, unless an alternative program has been approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Cargo Basket.

## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Cargo Basket.

#### *Daily Inspection*

1. Inspection Area: Basket
  - a) Inspect the basket attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.
  - b) Inspect latching of the lid for correct operation. If basket is bent inward the lid will close but may not latch.

#### *300 Hour or Annual Inspection*

1. Inspection Area: Basket
  - a) Visually inspect tube-to-tube welds and mesh-to-tube welds for cracks, corrosion or other damage.
  - b) Visually inspect basket mesh for damage.
2. Inspection Area: Beams
  - a) Visually inspect beams attaching basket to the helicopter for cracks, corrosion or other damage.
  - b) Visually inspect lugs attaching the basket to the beams hours for security and damage.
  - c) Visually inspect bolts attaching beams to external attachment provisions for security and damage.

#### *Special Inspections*

Following a hard landing inspect the Quick Release Cargo Basket installation in accordance with the 300 hour or annual inspection listed above.

## 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

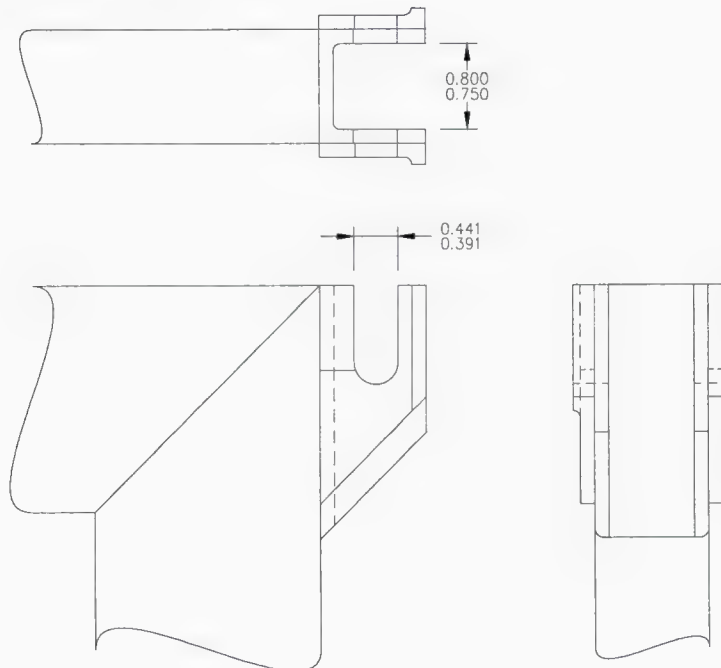
### 1. Basket

- a) Repair Basket in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, as required.
- b) Basket is fabricated from the following materials:
  - Lid and Rim:  $\frac{3}{4}$ " x 0.035" square 4130 steel tube
  - Frames:  $\frac{1}{2}$ " x 0.035" square 4130 steel tube
  - Mesh:  $\frac{3}{4}$ " 16 ga. (0.040") expanded carbon steel mesh
- c) Touch up with polyurethane paint as required following repairs.

### 2. Beams

DO NOT REPAIR DAMAGE TO BEAMS IF BEYOND THE LIMITS BELOW.

- a) Nicks and/or gouges on the top or bottom face up to 0.030" deep and 0.125" wide may be dressed out to a smooth contour.
- b) Nicks and/or gouges on the side faces up to 0.060" deep and 0.125" wide may be dressed out to a smooth contour.
- c) Do not repair the hook for the upper basket attachment if spread beyond the limits shown in Figure 3.



- d) Attempt to insert 13/32 drill shank into bottom end of hook slot. If drill can be inserted, slot is worn beyond limit.
- e) Touch up with polyurethane paint as required following repairs.



### 5-3 PROTECTIVE TREATMENT INFORMATION

#### 1. Beams

The beams are supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

#### 2. Cargo Basket

The cargo basket is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

**CHAPTER 11 – MARKINGS AND PLACARDS**

The following markings and placards are used with the Quick Release Cargo Basket Installation in the locations noted:

- a) Located on basket lid:



- b) Located on top of forward beam: 69830-01  
c) Located on top of aft beam: 69831-01

## CHAPTER 25 – EQUIPMENT AND FURNISHINGS

### SECTION 50 – CARGO COMPARTMENTS

#### 25-1 BEAMS INSTALLATION

Refer to Figure 4.

1. External Attachment Provisions installed in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407) are required prior to installing the Beams.
2. Locate 69830-01 Forward Beam on aft side of Forward Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.
3. Locate 69831-01 Aft Beam on forward side of Aft Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.

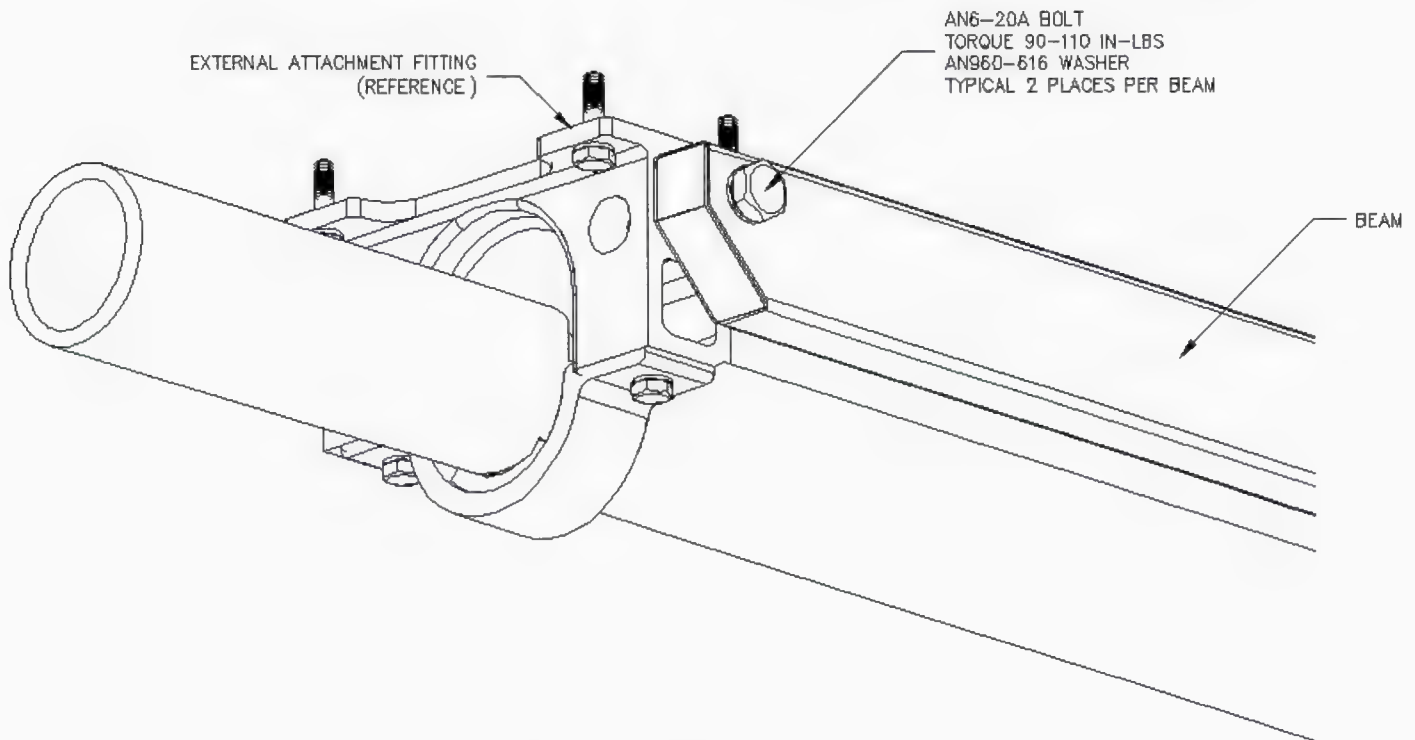


Figure 4 - Beams

#### 25-2 BEAMS REMOVAL

Refer to Figure 4.

1. Remove Cargo Basket. Refer to section 25-4.
2. Remove two AN6-20A Bolt and AN960-616 Washer from 69830-01 Forward Beam. Remove Forward Beam.

3. Remove two AN6-20A Bolt and AN960-616 Washer from 69831-01 Aft Beam. Remove Aft Beam.

### 25-3 BASKET INSTALLATION

Refer to Figure 5.

1. Set basket upper attachment into hook on forward and aft beams.
2. At forward end of basket, lift until lower attachment fitting can enter keyway. Push stop in and slide fitting down into keyway. Push down until locked.
3. Repeat step 2 for aft end.

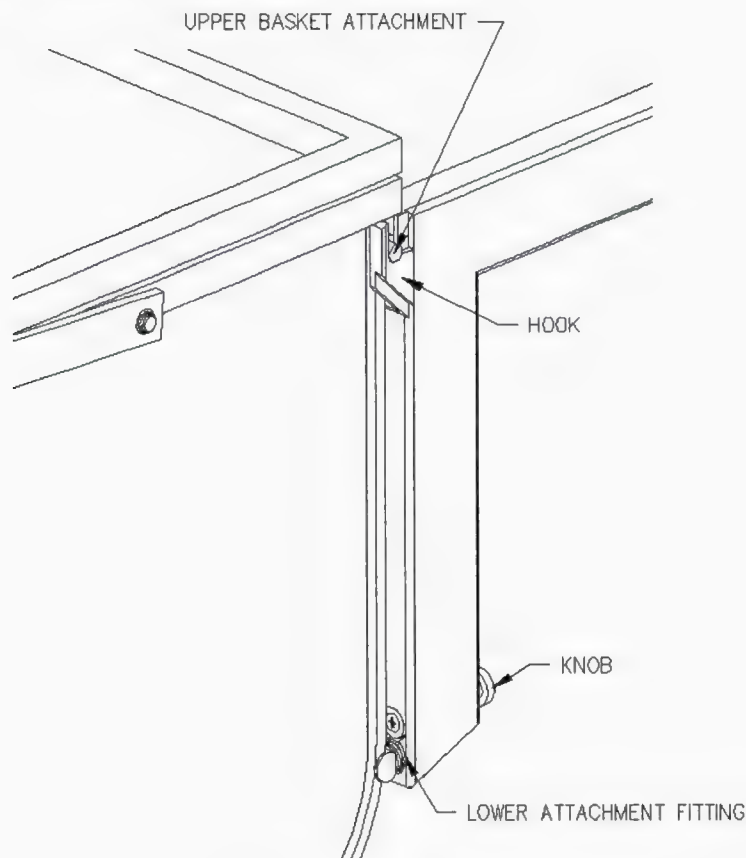


Figure 5 – Basket Attachment

### 25-4 BASKET REMOVAL

Refer to Figure 8.

1. Pull knob at bottom end of forward beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in hook on beam.
2. Pull knob at bottom end of aft beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in hook on beam.
3. Lift basket off hooks and remove from helicopter.



**25-5 WEIGHT AND BALANCE**

Two weight and balance configurations are required for the pilot. The first is the complete installation of Cargo Basket and Beams. The second is Beams only as the basket may be removed in the field by the pilot.

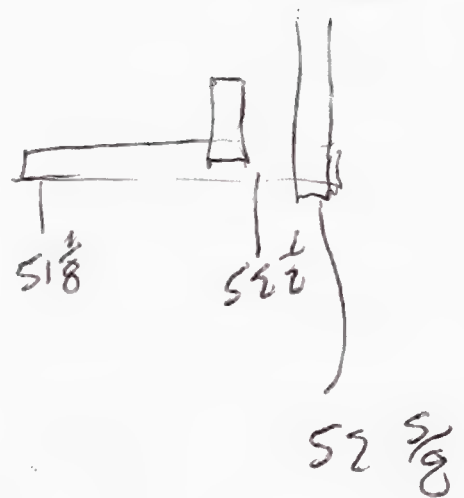
Configuration 1		Weight (lbs)	Longitudinal		Lateral	
Part #	Name		Arm (in)	Moment (in-lbs)	Arm (in)	Moment (in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
69810-01	Cargo Basket	45.0	114.1	5134.5	38.5	1732.5
Total		64.9	113.9	7389.8	30.3	1966.1

Configuration 2		Weight (lbs)	Longitudinal		Lateral	
Part #	Name		Arm (in)	Moment (in-lbs)	Arm (in)	Moment (in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
Total		19.9	113.3	2255.3	11.7	233.6

**25-6 STRUCTURAL FASTENER DATA**

Refer to Bell Standard Practices Manual BHT-ALL-SPM for torque values not listed in this ICA.

Bell 407  
Sliding Door.



*[Handwritten signature]*

ACXAAA

08211WE5  
400516

011 S/N: 0002

Pregis Corporation  
www.pregis.com

Telephone: 877-692-6163

LPC-LD

ASTRO-CELL

1/2" PE BUBBLE CUSHIONING

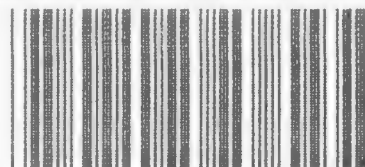
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LENGTH: 250.0'

SLIT: 4/12"

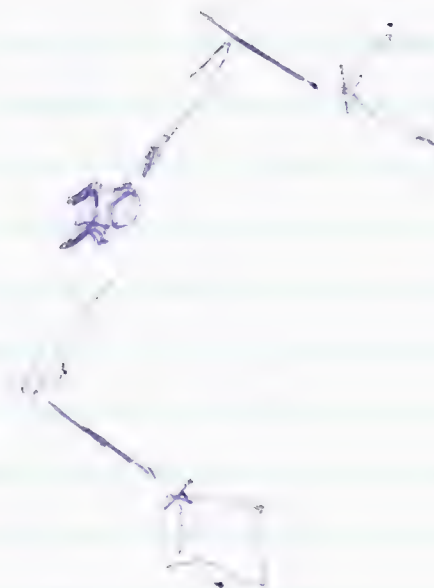
ITEM NO:

46334



46334

*John M. Davis**Jim [Signature]*



FIVES  
7/8" CLEARANCE  
BOTTOM OF DOOR  
TO OLD MESS



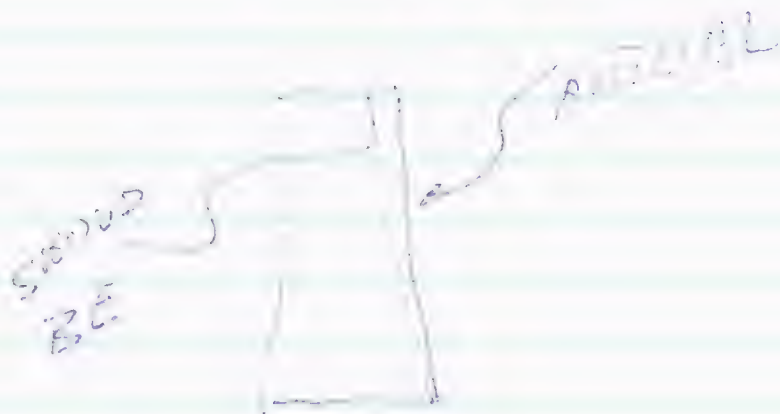
CHECK OF EXIST

BELLY SKIN BEHIND  
FOUND GORE  
FITTING



SELF PROTECTED

LEFT SIDE  
LOOKING FROM  
NO OUT BOARD



MEASURED  
Bill 46 FITTING  
7.0

10/5/07

G-6 P1 H  
CARBON

CONCUSSION  
FITTING 7.0  
BELL

USING  
STEEL BAR.  
SEE PICTURE

2

3

273 Conduit  
1 inch diameter and 1/2 inch thick  
Measure Twice



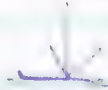
TO MEASURE  
AGAINST FACE OF  
FITTING

1.193

1.201



2.506



1.545

3/5/87

C-GER 4

EDN row 407

5/1/87

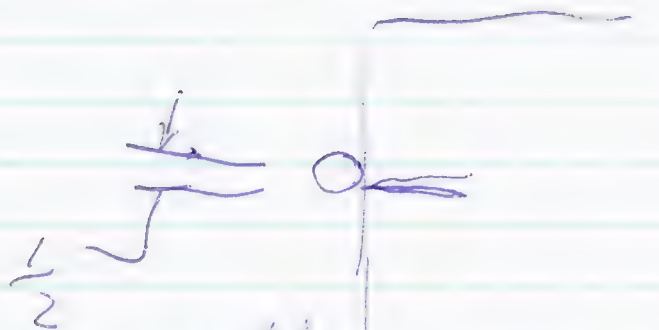
3/5/87 entrance on our new book

original book with hooks  
3/5/87 entrance and sub-division  
3/5/87 landing



ALPEN

GPCX



center of tube  
to center of  $\frac{1}{2}$ " spine tube  
at plane of basket bottom

LOOK IN  
IN 3D



$\frac{5}{8}$ " CLEARANCE  
MEASURED  
05 APR 07

# Calculation of the "K" factor for round hollow tubing subjected to bending stress beyond proportional limit

Where:

$$F_b = F_m + F_o \cdot (K - 1)$$

Where  $F_m$  and  $F_o$  must be taken from curves (See Bruhn, chapter C3)

$$M_{rupture} = \frac{F_b \cdot I}{c}$$

Ultimate Bending Moment is found from the elastic bending formula.

Dimensions of the tube:

$$H := 2.0 \cdot \text{in}$$

Rectuangular Tube Depth

$$w := 1.0 \cdot \text{in}$$

Tube width.

$$t := 0.100 \cdot \text{in}$$

Tube wall thickness

$$I = \frac{w \cdot H^3}{12} - \frac{(w - 2 \cdot t) \cdot (H - 2 \cdot t)^3}{12}$$

Moment of Intertia.

$$I = 0.278 \cdot \text{in}^4$$

$$Q := w \cdot t \cdot \frac{H - t}{2} + 2 \cdot t \cdot \left( \frac{H - 2 \cdot t}{2} \right) \cdot \left( \frac{H - 2 \cdot t}{4} \right)$$

Static Moment about N.A.

$$Q = 0.176 \cdot \text{in}^3$$

$$c = \frac{H}{2}$$

Extreme fibre measurement.

$$c = 1.0 \cdot \text{in}$$

$$K = \frac{2 \cdot Q \cdot H}{I}$$

Plastic Bending Form factor.

$$K = 1.27$$

Ultimate Tensile Strength.

$$F_m := 90 \cdot \text{ksi}$$

Ref. Bruhn Table C3.2

$$F_o := 83.1 \cdot \text{ksi}$$

$$F_b := F_m + F_o \cdot (K - 1)$$

Bending Modulus of Tube.

$$F_b = 112 \cdot \text{ksi}$$

$$M_{elastic} := \frac{F_m \cdot I}{c}$$

**Allowable bending moment on tube (using elastic stress)**

$$M_{elastic} = 25008 \cdot \text{in} \cdot \text{Lb}$$

$$M_{plastic} := \frac{F_b \cdot I}{c}$$

**Allowable ultimate bending moment on tube, (taking plastic deformation of the material into consideration).**

$$M_{plastic} = 31168 \cdot \text{in} \cdot \text{Lb}$$

Note that collapse of the high walls may be the critical mode of failure - not considered here.

1 November, 2007

Transport Canada  
Aircraft Certification Division  
11<sup>th</sup> Floor, Canada Place  
9700 Jasper Avenue  
Edmonton, Alberta  
T5J 4E6

Attn: Jack Staal

Your File # : SH00-48

Our File # : Various

Re: Cargo Basket Approval Revisions

Jack,

Please find attached the following documents related to this project:

Supplemental Type Certificate (draft)	✓SH00-48	Issue 6
(High Quick Release Basket)		
Document Control List	✓DCL766-1	Revision 0
Document Control List	✓DCL766-2	Revision 0
AE 100 Form	✓AE766-1	Revision 0
AE 100 Form	✓AE766-2	Revision 0
Compliance Program	✓CP766	Revision 0
Modification Approval Application Form	✓MOD766	Revision 0
Engineering Report	✓ER766.01	Revision 0
Test Plan	✓TP766.02	Revision 0
Instructions for Continued Airworthiness	✓ICA766.90	Revision 0
MSI 53 Review	✓	
Flight Manual Supplement (407)	✓FMS766.91	Revision 0
Flight Manual Supplement (206L)	✓FMS766.92	Revision 0
Cargo Basket Installation	✓76601	Revision 0
Cargo Basket Assembly	✓76610	Revision 0
Cargo Basket Body	✓76611	Revision 0
Basket Components - End Hoop Assembly	✓76621	Revision 0
Basket Comp. - Attach Hoop Assembly	✓76622	Revision 0
Basket Components - Hoop	✓76623	Revision 0
Basket Components - Placard	✓76625	Revision 0
Support Beams	✓76630	Revision 0
Handle Assembly	✓36255	Revision 1
Handle Bar Assembly	✓36261	Revision 3
Handle Bracket Assembly	✓36262	Revision 1
Handle Lever	✓36271	Revision 1
Basket Bracket	✓36272	Revision 1
Lid Bracket	✓36273	Revision 1
Bushing	✓36274	Revision 1
Bushing	✓36275	Revision 2

**(407 Attachment Provisions)**

Document Control List

AE100 Form

Block Fabrication

✓ DCL700 Revision 1  
✓ AE700 Revision 1  
✓ 60620 Revision 1

**(Low Fixed Basket)**

Document Control List

Document Control List

AE100 Form

Cargo Basket Installation (206L)

Support Beams (Pocketed Aluminum)

Support Beams (Steel)

Engineering Report - Pocketed Beams

Instructions for Continued Airworthiness

Flight Manual Supplement

Document Control List

AE100 Form

Cargo Basket Installation (407)

Flight Manual Supplement

✓ DCL492 Revision 6  
✓ DCL492-1 Revision 1  
✓ AE492 Revision 2  
✓ 49201 Revision 3  
✓ 49221 Revision 3  
✓ 49222 Revision 2  
✓ ER492.04 Revision 1  
✓ ICA492.90 Revision 1  
✓ FMS492.01 Revision 2  
✓ DCL606 Revision 3  
✓ AE606 Revision 2  
60601 Revision 2  
✓ FMS606.01 Revision 2

**(Quick Release Basket Installation)**

Document Control List

AE100 Form

Cargo Basket Installation (407)

Flight Manual Supplement

Document Control List

AE100 Form

Cargo Basket Installation (206L)

Flight Manual Supplement

✓ DCL701 Revision 1  
✓ AE701 Revision 1  
✓ 70101 Revision 2  
✓ FMS701.90 Revision 1  
✓ DCL702 Revision 1  
✓ AE702 Revision 1  
✓ 70201 Revision 2  
✓ FMS702.90 Revision 1

**(Quick Release Basket Fabrication)**

Document Control List

AE100 Form

Cargo Basket Assembly

Basket Body Assembly

Basket Components - End Hoop

Basket Components - Aft Hoop

Instructions for Continued Airworthiness

Document Control List

AE100 Form

Forward Beam Fabrication

Aft Beam Fabrication

Engineering Report

✓ DCL698-1 Revision 1  
✓ AE698-1 Revision 1  
✓ 69810 Revision 2  
✓ 69811 Revision 2  
✓ 69821 Revision 1  
✓ 69822 Revision 0  
✓ ICA698.90 Revision 1  
✓ DCL698-2 Revision 2  
✓ AE698-2 Revision 1  
✓ 69830 Revision 2  
✓ 69831 Revision 2  
✓ ER698.04 Revision 0



**AERO DESIGN LTD.**

2013 - 39 Avenue N.E., Calgary, Alberta, T2E 6R7

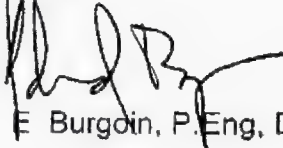
Tel 403-250-8027

Fax 403-250-8333

info@aerodesign.ca

Please note the request for a revision to the FAA STC after the Canadian approval is issued.

Regards,

A handwritten signature in black ink, appearing to read 'E. Burgoin', is written over the typed name.

E. Burgoin, P. Eng, DAR 290M

Encl.

# FORM AE-100

<b>DEPARTMENT OF TRANSPORT</b> <b>STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT</b> <b>COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS</b>		AE-100 No : AE698-1 Initial Issue Date: 25 May, 2006  Revision: 1 Revision Date: 1 November 2007  Approval No.: SH00-48  Delegation No.: 290M Delegate Name: E. Burgoin Classification of Designee: Employer: AIRO Design Ltd	
Aircraft Mfr: Bell Aircraft Model: 206L Series, 407 Registration: All Eligible	<b>Model Type</b>  Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>		
<b>LIST OF APPROVED REPORTS AND DATA</b>			
<b>Document Number</b>	<b>Document Title</b>		<b>Compliance Status</b>
DCL698-1  69810 69811 69821 69822  36261 36271 36272 36273 36274 36275	Revision 1  Revision 2 Revision 2 Revision 1 Revision 0  Revision 3 Revision 1 Revision 1 Revision 1 Revision 1 Revision 2	Document Control List and all documents referred to therein  Cargo Basket Assembly Basket Body Assembly Basket Components - End Hoop Basket Components - Aft Hoop  Handle Bar Assembly Handle Lever Basket Bracket Lid Bracket Bushing Bushing	
<b>DATA APPROVED BY TRANSPORT CANADA</b>			
<b>CERTIFICATION</b>			
<p>UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIREMENTS.</p> <p>I THEREFORE <input type="checkbox"/> RECOMMEND FOR APPROVAL OF THESE DATA</p> <p><input checked="" type="checkbox"/> APPROVE THESE DATA</p> <div style="text-align: right; margin-top: 20px;">         E. Burgoin, DAR 290M     </div>			

# FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS		AE-100 No.: AE698-2 Initial Issue Date: 25 May, 2006  Revision: 1 Revision Date: 1 November, 2007  Approval No.: SH00-48  Delegation No.: 290M Delegate Name: E. Burgoin Classification of Designee Employer: AERO Design Ltd
Aircraft Mfr: Bell Aircraft Model: 206L Series, 407 Registration: All Eligible	Model Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>	
LIST OF APPROVED REPORTS AND DATA		
Document Number	Document Title	Compliance Status
DCL698-2 ER698.04	Revision 2 Revision 0 Document Control List and all documents referred to therein Engineering Report	
69830 69831	Revision 2 Revision 2 Forward Beam Fabrication Aft Beam Fabrication	
DATA APPROVED BY TRANSPORT CANADA		
CERTIFICATION		
UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIREMENTS.		
I THEREFORE <input type="checkbox"/> RECOMMEND FOR APPROVAL OF THESE DATA <input checked="" type="checkbox"/> APPROVE THESE DATA		
 E. Burgoin, DAR 290M		

# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

## APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

### BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Cargo Basket on Bell Bell 206L Series/407
Certification Basis of design change and revision date:	FAR 27, Amendment 27-30
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 698.90)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 70101, 70201

### BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.2 (a) Manual(s)</b> (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Bell Bell 206L Series/407 Maintenance Manuals, BHT-206L-MM BHT-206L1-MM BHT-206L3-MM BHT-206L4-MM BHT-407-MM	Supplemental ICA ref: Single Manual (ICA698.90)
<b>A527.2 (b) Practical arrangement</b> (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (a) Rotorcraft maintenance manual or section</b>		
<b>A527.3 (a) (1) (Introduction)</b> (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-1



### MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (a) (2) (Description)</b> (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-5, 0-6
<b>A527.3 (a) (3) Control &amp; Operation</b> (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (a) (4) Servicing</b> (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (b) Maintenance Instructions.</b>		
<b>A527.3 (b) (1) Scheduling</b> 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1

### MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (b) (2) Troubleshooting</b> (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (b) (3) Removal/replacement</b> (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 thru 25-4
<b>A527.3 (b) (4) General</b> (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-5
<b>A527.3 (c) Access</b> (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (d) Special inspections</b> (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
<b>A527.3 (e) Protective treatment</b> (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 3	Supplemental ICA ref: Section 5-3
<b>A527.3 (f) Fasteners, torque values, etc</b> (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 2	Supplemental ICA ref: Section 25-6
<b>A527.3 (g) Special tools</b> (g) A list of special tools needed.	ICA ref: N/A	Supplemental ICA ref: N/A

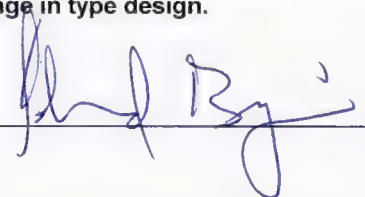
## MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

### BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

<b>A527.4 AWL - Separate Section 1</b> The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 4	Supplemental ICA ref: Chapter 4
---	---	---------------------------------

### BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.	
Applicants Signature: 	Date: <u>5 MAY 2006</u>
Applicants Name: <u>E. Burgoin, P.Eng, DAR 290M</u>	

### BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.			
Reviewer's Name: _____	Phone # _____	Email: _____	Mail Routing Symbol: _____
Signature: _____	Date: _____	NAPA Number _____	

26 SEPT, 2006

PHONE CONVERSATION BETWEEN JACK STAAL  
AND TED BURGON

JACK INQUIRED WITH FLIGHT TEST IN  
OTTAWA

BELL 206L \* ON HIGH SKID GEAR \*  
AN OBJECT EXTENDING 18 INCHES  
BELOW THE HELICOPTER BELLY HAS  
ADEQUATE CLEARANCE FOR THE CONDITION  
OF : RESERVE ENERGY ABSORPTION DROP TEST

BELL 407 (ON HIGH SKIDS) OBJECT MAY  
EXTEND 15.4 INCHES BELOW BELLY FOR  
SAME CONDITION.



b. Procedures.

(1) The determination of compliance can be accomplished in conjunction with the following activities:

- (i) Reviewing type design drawings.
- (ii) Conformity inspections accomplished during certification testing.
- (iii) Be evaluated during the control system proof and operation tests (§§ 27.681 and 27.683).
- (iv) During type inspection tests and functioning and reliability testing.

(2) Equipment requiring frequent inspections (at less than 25-hour intervals), lubrication, or adjustments should be accessible through “nonstructural” doors. Areas or items requiring daily attention should be accessible through “nonstructural” doors since properly rated maintenance personnel are required to “open and close” or reinstall structural panels, and special design features, such as multiple pins and latches, are generally necessary for structural doors.

AC 27.613. § 27.613 (Amendment 27-16) MATERIAL STRENGTH PROPERTIES AND DESIGN VALUES.

a. Explanation. The rule requires the use of materials that have a known minimum strength value. The structure must not be understrength and must be designed to minimize fatigue failure.

(1) Material design values in certain specified documents may be used. The FAA/AUTHORITY may approve other material design values thus allowing the applicant greater flexibility in selection of materials by proving their strength properties and design values as stated in § 27.613(d).

(2) Other materials that may be new or are not included in the specified documents may be tested and design values established as provided by § 27.613(a) and (d).

(3) Section 27.613(d) requires the selection of materials that will retain design values and properties in the type of service environment and for the length of service time intended for the structure.

(4) Section 27.613(c) is an objective rule concerning minimizing fatigue failures and § 27.571 concerns quantitative fatigue substantiation requirements.

b. Procedures.

(1) The properties and design values in the documents noted in the rule may be used.

(2) MIL-HDBK-5, Metallic Materials and Elements for Flight Vehicle Structure, Chapter 9, contains procedures for establishing design values of additional materials. Uniform means of presenting the data are also contained in this chapter.

(3) Design values and properties must include effects of the service environment and service time. An example is exposure at elevated temperatures on the ultimate tensile strength of 7079-T6 aluminum alloys as found in figure 3.7.4.1.1(c) of MIL-HDBK-5.

(4) The probability of disastrous fatigue failures must be minimized. This may be accomplished by using design features usually identified as fail-safe features, such as the following:

(i) Selection of materials with stress levels to provide a controlled slow rate of crack propagation combined with high residual strength after initiation of cracks (lightly loaded structures).

(ii) Use of multipath construction and the provision of crack stoppers to limit the growth of cracks.

(iii) Use of composite (multielement) duplicate structures so that a fatigue crack or failure occurring in one element of the composite (multielement) member will be confined to that element and the remaining structure will still possess adequate load-carrying ability.

(iv) Use of backup structure wherein one member carries all the load, with a second member available and capable of assuming the extra load if the primary member fails.

(v) Design to permit detection of cracks including the use of crack detection systems, in all critical structural elements before the cracks can become dangerous or result in appreciable strength loss, and to permit replacement or repair.

(5) Acceptable standards for pressurized containers or cylinders, such as cylinders of nitrogen, used to inflate emergency floats may be found in 49 CFR 178, Subpart C, §§ 178.36 through 178.68. Specifically, § 178.44 concerns standards for steel cylinders used in aircraft that are subjected to at least 900 PSI service pressure. This standard includes strength, test, material property, inspection, quality, design features, identification, and inspection report requirements. As an example, § 178.44-14, entitled "Hydrostatic Test," requires that each cylinder must be (proof) tested to at least  $5/3$  times the service pressure. Section 178.44-16, entitled "Burst

Test,” also states that one cylinder taken at random out of each lot of cylinders shall be hydrostatically tested to destruction.

(6) Other design criteria may be developed and approved under the provisions of FAR Part 27 as a unique part of the aircraft type design.

AC 27.613A. § 27.613 (Amendment 27-26) MATERIAL STRENGTH PROPERTIES AND DESIGN VALUES.

a. Explanation. Amendment 27-26 added explicit probability standards criteria to § 27.613(b). This amendment also provided for testing or proving the strength of selected individual items rather than conducting coupon tests to develop generic material strength properties that would be used for design purposes.

b. Procedures. The basic procedures of paragraph AC 27.613 still apply, except:

(1) Probability criteria common with MIL-HDBK-5D are explicitly allowed to determine strengths for metallic materials whose data are not available in MIL-HDBK-5D. These specific probability criteria should be used in conjunction with MIL-HDBK-17B whenever determining material strength properties for non-metallics. (Also, reference paragraph AC 27 MG 8).

(2) New § 27.613(e) provides for the premium selection of materials. The premium selection of materials method uses a specimen from each individual item (part) to determine its properties before its use is allowed. This is a highly specialized and possibly costly method which applies only to parts that have areas available from which specimens can be obtained without destroying the part. The rotorcraft type design data of those parts made from premium selection should have the necessary information, such as a minimum allowable strength, on the drawing.

AC 27.619. § 27.619 SPECIAL FACTORS.

a. Explanation.

(1) This is a general rule to complement other rules. Special factors are employed for reasons cited in the rule to ensure an airworthy aircraft structure. The 1.5 ultimate load factor in § 27.303 is multiplied by a special factor as specified in the rule.

(2) Specific factors are prescribed for castings and fittings in §§ 27.621 and 27.625, respectively. Factors may be prescribed for bearings with free clearance as stated in § 27.623. In addition, any other factor may be prescribed “to ensure that the probability of the part being understrength because of the uncertainties specified in § 27.619(a) is extremely remote.”

b. Procedures.

**23.613 Material strength properties and design values (Amendment 23-45)**

- (a) No policy available as of June 1, 1994.
- (b) No policy available as of June 1, 1994.
- (c) No policy available as of June 1, 1994.
- (d) No policy available as of June 1, 1994.
- (e) Ideally, the structural test article (a whole wing, an empennage, a fuselage, etc.) would contain all elements that are made of specification guaranteed-minimum-strength materials. Furthermore, each element's physical dimensions (geometry) would be at the nominal size, plus or minus specified tolerances, to conservatively represent the least strength or least stiff part that could be used according to approved design data (drawings, specifications, stress, or structural analyses).

Materials delivered according to specifications exceed the guaranteed-minimum-strength called out by drawings 99 times out of 100. Military Handbook Metallic Materials and Elements for Aerospace Vehicle Structures (MIL-HDBK-5), industry, and professional society material specifications intend this result, i.e., with 95 percent confidence that 99 percent of the materials will exceed selected design values. That is, the materials used in the test article (and in production articles) are stronger than the minimum values certificated in the design.

Parts (elements) are manufactured and delivered to nominal sizes within tolerances. This means that they will either deliver minimal performance or more than promised.

There are, fundamentally, four actions an airplane designer can take to determine the strength of the airplane's structure:

- (1) The designer can analyze the airplane structure to both limit and ultimate load conditions, using guaranteed minimum-strength-material properties and conservative geometric characteristics;
- (2) The designer can test the airplane structure to limit loads and then analyze the airplane structure to ultimate loads;
- (3) The designer can test the airplane structure to limit loads and, later, to ultimate conditions; and
- (4) The designer can test the airplane structure to beyond ultimate load conditions.



This last option is usually chosen to determine excess strength, or growth capabilities. It also exceeds the minimum FAA airworthiness standards for which compliance should be shown. Certain airworthiness standards require one of these methods instead of the others.

An applicant should substantiate that the strength properties of components used in structural tests are such that subsequent components used in airplanes presented for certification will have strengths equal to or exceeding the demonstrated strength of the tested components.

If the applicant chooses to demonstrate strength capability by tests of structural components, the applicant should substantiate that the strength of the tested component conservatively represents the strength of subsequent production components. Substantiating data might include quality control data, material and process specifications, material certifications, coupon sampling tests, or other appropriate information.

An applicant may also apply material correction factors to the applied test loads to account for material variability. Applicants should use material correction factors for ultimate load tests of single load path critical flight structure and for fail-safe tests of dual load path critical flight structure with one load path failed.

Applicants do not need to use material correction factors for limit load tests or for ultimate load tests of fail-safe designs where loads from one failed component are distributed to and carried by two or more remaining components.

See 23.603, Materials and workmanship, for additional information about composite or wood materials.

**Other useful references:** AC 20-33B, Technical Information Regarding Civil Aeronautics Manuals (CAM's) 1, 3, 4a, 4b, 5, 6, 7, 8, 9, 13 and 14; CAM 3, paragraphs 3.174-1 and 3.301-1; and CAM 4a, paragraph 4a.230.

Existing 14 CFR part 23 rules related to the material correction factors are §§ 23.305(a) and (b); 23.307(a); 23.603(a); 23.613(c); and, before Amendment 23-45, § 23.615(a) and (c).

**Policy:** The intent of § 23.305, paragraphs (a) and (b), Strength and deformation requirements, § 23.307(a), Proof of structure standards, and § 23.603(a)(1), Materials and workmanship regulations, is that the lowest strength conforming airframe produced to a set of FAA-approved type design data will comply with the requirements of § 23.305.

**Jeff Clarke**

---

**From:** Paul Lu [paul@maxpo.ca]  
**Sent:** Tuesday, May 02, 2006 12:58 PM  
**To:** jeff@aerodesign.ca  
**Subject:** Re: Placards

Hi Jeff,

Here are the prices as requested. Let me know if you have any questions.

Thanks, Paul

**Decals**

- 3.25" x 1.75" finished size / Avery A-6 vinyl, 1 colour print  
- Qty. 8 x 2

Price = \$ 45.00 + GST

**Plates**

- 3.25" x 1.75" finished size / Aluminum / Engraved  
- Qty. 8 x 2

Price = \$ 25.00/each

**From:** Jeff Clarke

**To:** 'Paul Lu'  
**Sent:** Tuesday, May 02, 2006 9:33 AM  
**Subject:** Placards

Hi Paul,

Just checking on the quote I requested last Monday.

Thank you.

Jeff Clarke

AERO Design Ltd.

5/3/2006

Laser Equation Ltd.  
"Industrial Cutting Solutions"

2018 41st Avenue N.E.  
Calgary, AB. T2E 8Z7

Tel: (403) 250-2603  
Fax: (403) 735-5123  
Email: lasereq@telus.net

## REVISED FAX TRANSMITTAL

To: Jeff Clarke  
P.O. No: N.A.

Number of Pages: 1

Quotation No.: 39416

QUOTATION  
Customer No.: 121

Date: April 27, 2006

### CUSTOMER:

Aero Design Ltd.  
2013 39 Ave. N.E.  
Calgary AB T2E 6R7

Phone: (403) 250-8027  
Cell:  
Fax: (403) 250-8333

### PART DESCRIPTION AND PRICE:

Item No.	Part description	Unit price	No. of Units	Total Price
1	Engraved Panel 60645	\$47.22	20	\$944.40
2	Engraved Panel 69827	\$47.22	20	\$944.40
<b>Total</b>				<b>\$1,888.80</b>

Received and approved by: \_\_\_\_\_  
Please initial and return with purchase order to authorize job to proceed.

### SCOPE:

<b>DESIGN:</b>	Design, drawing and computer file (DXF or otherwise) supplied by Aero Design Ltd..	
<b>PROGRAMMING:</b>	Creation of the computer drawing/file	Included
<b>PREPRODUCTION:</b>	Laser or Water Jet machine programming.	Included
<b>MATERIAL:</b>	Production set up.	Included
	Stainless Steel - 304 - 0.031 22 Ga. - #4	
	Supplied by Aero Design Ltd..	Not included
<b>PROCESSING:</b>	Laser cutting (Tolerance 0.005). Water Jet cutting (Tolerance up to 1", 0.010 & 1" & over 0.020) or as stated by LE.	Included
<b>G.S.T.</b>	Extra	Not included
<b>DELIVERY:</b>	Quotation based on customer pickup of parts at LE's Shop.	Not included

### TERMS AND CONDITIONS:

**COMPLETION:** Four (4) days after receipt of order, detailed drawing, computer file (DXF or otherwise) or material, whichever occurs last. (Delivery dates are only approximate.)

**GENERAL:** Standard terms and conditions apply.

Prices subject to increase in material costs from date of quotation or quantity change.

To check on the status of your order, please call David Jung @ (403) 250-2576.

Submitted by: \_\_\_\_\_

Graham Park

Laser Equation Ltd.  
"Industrial Cutting Solutions"

**FAXED**

2018 41st Avenue N.E.  
Calgary, AB, T2E 8Z7

Tel: (403) 250-2603  
Fax: (403) 735-5123  
Email: lasercq@telus.net

## FAX TRANSMITTAL

To: Jeff Clarke  
P.O. No: N.A.

Number of Pages: 1

## QUOTATION

Quotation No.: 39416

Customer No.: 121

Date: April 27, 2006

### CUSTOMER:

Aero Design Ltd.  
2013 39 Ave. N.E.  
Calgary AB T2E 6R7

Phone: (403) 250-8027  
Cell:  
Fax: (403) 250-8333

### PART DESCRIPTION AND PRICE:

Item No.	Part description	Unit price	No. of Units	Total Price
1	Engraved Panel 60645	\$47.65	20	\$953.00
2	Engraved Panel 69827	\$47.65	20	\$953.00
<b>Total</b>				<b>\$1,906.00</b>

Received and approved by:

Please initial and return with purchase order to authorize job to proceed.

### SCOPE:

<b>DESIGN:</b>	Design, drawing and computer file (DXF or otherwise) supplied by Aero Design Ltd..	
	Creation of the computer drawing/file	Included
<b>PROGRAMMING:</b>	Laser or Water Jet machine programming.	Included
<b>PREPRODUCTION:</b>	Production set up.	Included
<b>MATERIAL:</b>	Stainless Steel - 304 - 0.031 22 Ga. - #4 Supplied by LEi.	Included
<b>PROCESSING:</b>	Laser cutting (Tolerance 0.005). Water Jet cutting (Tolerance up to 1", 0.010 & 1" & over 0.020) or as stated by LE.	Included
<b>G.S.T.</b>	Extra	Not included
<b>DELIVERY:</b>	Quotation based on customer pickup of parts at LE's Shop.	Not included

### TERMS AND CONDITIONS:

**COMPLETION:** Four (4) days after receipt of order, detailed drawing, computer file (DXF or otherwise) or material, whichever occurs last. (Delivery dates are only approximate.)

**GENERAL:** Standard terms and conditions apply.

Prices subject to increase in material costs from date of quotation or quantity change.

To check on the status of your order, please call David Jung @ (403) 250-2576.

Submitted by:

Graham Park

GRAHAM, COULD YOU REVISE THE QUOTE FOR MATERIAL SUPPLIED BY US - WE ALREADY HAVE THE SHEET. STEVEN

Laser Equation Ltd.  
"Industrial Cutting Solutions"

2018 41st Avenue N.E.  
Calgary, AB. T2E 8Z7

Tel: (403) 250-2603  
Fax: (403) 735-5123  
Email: lasereq@telus.net

## FAX TRANSMITTAL

To: Jeff Clarke  
P.O. No: N.A.

Number of Pages: 1

## QUOTATION

Quotation No.: 39416

Customer No.: 121

Date: April 27, 2006

### CUSTOMER:

Aero Design Ltd.  
2013 39 Ave. N.E.  
Calgary AB T2E 6R7

Phone: (403) 250-8027  
Cell:  
Fax: (403) 250-8333

### PART DESCRIPTION AND PRICE:

Item No.	Part description	Unit price	No. of Units	Total Price
1	Engraved Panel	\$93.40	1	\$93.40
	<b>Total</b>			<b>\$93.40</b>

Received and approved by: \_\_\_\_\_

Please initial and return with purchase order to authorize job to proceed.

### SCOPE:

<b>DESIGN:</b>	Design, drawing and computer file (DXF or otherwise) supplied by Aero Design Ltd..	
	Creation of the computer drawing/file	Included
<b>PROGRAMMING:</b>	Laser or Water Jet machine programming.	Included
<b>PREPRODUCTION:</b>	Production set up.	Included
<b>MATERIAL:</b>	Stainless Steel - 304 - 0.031 22 Ga. - #4 Supplied by LEI.	Included
<b>PROCESSING:</b>	Laser cutting (Tolerance 0.005). Water Jet cutting (Tolerance up to 1", 0.010 & 1" & over 0.020) or as stated by LE.	Included
<b>G.S.T.</b>	Extra	Not included
<b>DELIVERY:</b>	Quotation based on customer pickup of parts at LE's Shop.	Not included

### TERMS AND CONDITIONS:

**COMPLETION:** Four (4) days after receipt of order, detailed drawing, computer file (DXF or otherwise) or material, whichever occurs last. (**Delivery dates are only approximate.**)

**GENERAL:** Standard terms and conditions apply.

Prices subject to increase in material costs from date of quotation or quantity change.

*To check on the status of your order, please call David Jung @ (403) 250-2576.*

Submitted by: \_\_\_\_\_

Graham Park



## CSA G40.21

Standard for Structural Steels  
Issued by Canadian Standards Association (CSA)

This standard, known as CSA G40.21 covers six types of structural quality plates, shapes and bars for general construction and engineering purposes.

The six different types covered are:

- Type G – General Construction Steel
- Type W – Weldable Steels
- Type T – Weldable Low Temperature Steels
- Type R – Atmospheric Corrosion Resistant Structural Steels
- Type A – Atmospheric Corrosion Resistant Structural Steel
  
- Type Q – Quenched and Tempered Low Alloy Steel Plate

### AVAILABILITY

These seven strength levels and six types have been combined into eighteen grades as follows:

Type	Yield Strength ksi - mPa						
	33 230	38 260	44 300	50 350	60 400	70 480	100 700
<b>G</b>	33G 230G			50G 350G	60G 400G		
<b>W</b>	33W 230W	38W 260W	44W 300W	50W 350W	60W 400W	70W 480W	
<b>T</b>		38T 260T	44T 300T	50T 350T	60T 400T	70T 480T	
<b>R</b>				50R 350R			
<b>A</b>				50A 350A	60A 400A		
<b>Q</b>							100Q 500Q

**TYPE G** – A general construction steel meeting minimum strength requirements, but not recommended for low temperature service. Primarily designed for applications requiring bolting. However, can be welded under carefully controlled shop conditions, but not recommended for field welding where control may be difficult to maintain.

**TYPE W** – Weldable steels for general construction. Available in six strength grades. These steels are widely used for bridges and other dynamically loaded structures. Grade 44W is recommended for normal building construction where field or shop welding procedures are used. Not specifically recommended for low temperature applications.

WESTUBE P# 4733

D04

NO. 115

YL

江苏玉龙钢管有限公司  
JIANGSU YULONG STEEL PIPE CO.,LTD

YUQI WUXI, JIANGSU 214183, CHINA

## MILL TEST REPORT

ORIGINAL

TO: WESTUBE LTD SIKKIN ARROW  
COMMODITY: ERW SQUARE AND RECTANGULAR TUBINGS.PO. NO.: 13524  
DESTINATION: VANCOUVER, BC  
L/C NO: 5FAHD5-00714SPECIFICATION: ASTM A500 GR. C-2003a/CSA G40.21 50W(350W)-2003a  
PRODUCTION: JAN, 2006  
ISSUE DATE: JAN 28, 2006

NO: YL-38MTC-02

ITEM	SIZE			QUANTITY			NET WEIGHT (M.T.)	NET WEIGHT (LBS)	HEAT NO.	CHEMICAL COMPOSITION													PHYSICAL TEST			VISUAL & DIMEN- SION	SQUARE- NESS (degree)	STRAIG- HTNESS MM	REMARK LIFT NO.
	SIDE LENGTH IN	L FT	W.T. IN	PCS	LIFTS	FEET /				C	Si	Mn	S	P	Cu	Ni	Cr	Mo	V	TENSILE	YIELD	ELONG- ATION							
										x100					x1000								Mpa		5 5 (%)				
YL-38-03	2 X 2	40	0.125	175	7	7,000	9.716	21420.0	9012310	13	28	130	20	17	6	24	35	3	2	520	400	26	ACCEPT	90	ACCEPT	1-7			
YL-38-04	2 X 2	48	0.125	150	6	7,200	9.994	22032.0	9012310	13	28	130	20	17	6	24	35	3	2	520	400	26	ACCEPT	90	ACCEPT	1-6			
YL-38-05	2 X 1	24	0.125	840	21	20,160	20.667	45561.6	9012310	13	28	130	20	17	6	23	34	3	2	520	400	26	ACCEPT	90	ACCEPT	1-21			
YL-38-06	4 X 2	40	0.125	50	2	2,000	4.318	9520.0	9012310	13	28	130	20	17	6	23	34	3	2	520	400	26	ACCEPT	90	ACCEPT	1-2			
YL-38-07	4 X 2	48	0.125	100	4	4,800	10.364	22848.0	9012310	13	28	130	20	17	6	23	34	3	2	520	400	26	ACCEPT	90	ACCEPT	1-4			
YL-38-08	4 X 4	32	0.188	80	5	2,560	10.939	24115.2	1305210	10	31	120	15	21	6	22	33	3	2	545	420	26	ACCEPT	90	ACCEPT	1-5			
YL-38-09	4 X 4	40	0.188	64	4	2,560	10.939	24115.2	1305210	10	31	120	15	21	6	22	33	3	2	545	420	26	ACCEPT	90	ACCEPT	1-4			
YL-38-10	4 X 4	48	0.188	48	3	2,304	9.845	21703.7	1305210	10	31	120	15	21	6	22	33	3	2	545	420	26	ACCEPT	90	ACCEPT	1-3			
YL-38-11	4 X 4	32	0.250	36	3	1,152	6.380	14065.9	2410350	16	34	132	11	14	6	23	34	3	2	530	395	27	ACCEPT	90	ACCEPT	1-3			
YL-38-12	4 X 4	40	0.250	48	4	1,920	10.634	23443.2	2410350	16	34	132	11	14	6	23	34	3	2	530	395	27	ACCEPT	90	ACCEPT	1-4			
YL-38-13	4 X 4	48	0.250	12	1	576	3.190	7033.0	2410350	16	34	132	11	14	6	23	34	3	2	530	395	27	ACCEPT	90	ACCEPT	1-1			
YL-38-14	5 X 5	32	0.188	99	11	3,168	17.201	37921.0	1305210	10	31	120	15	21	6	22	35	3	2	545	420	26	ACCEPT	90	ACCEPT	1-11			
YL-38-15	5 X 5	40	0.188	72	8	2,880	15.637	34473.6	1305210	10	31	120	15	21	6	22	35	3	2	545	420	26	ACCEPT	90	ACCEPT	1-8			
YL-38-16	5 X 5	48	0.188	63	7	3,024	16.419	36197.3	1305210	10	31	120	15	21	6	22	35	3	2	545	420	26	ACCEPT	90	ACCEPT	1-7			
YL-38-17	5 X 5	32	0.250	72	8	2,304	16.324	35988.5	2410350	16	34	132	11	14	6	24	36	3	2	530	395	27	ACCEPT	90	ACCEPT	1-8			
YL-38-18	5 X 5	40	0.250	54	6	2,160	15.304	33739.2	2410350	16	34	132	11	14	6	24	36	3	2	530	395	27	ACCEPT	90	ACCEPT	1-6			
YL-38-19	5 X 5	48	0.250	45	5	2,160	15.304	33739.2	2410350	16	34	132	11	14	6	24	36	3	2	530	395	27	ACCEPT	90	ACCEPT	1-5			
YL-38-20	6 X 4	40	0.188	72	8	2,880	15.637	34473.6	1305210	10	31	120	15	21	6	22	35	3	2	545	420	26	ACCEPT	90	ACCEPT	1-8			
YL-38-21	6 X 4	48	0.188	63	7	3,024	16.419	36197.3	1305210	10	31	120	15	21	6	22	35	3	2	545	420	26	ACCEPT	90	ACCEPT	1-7			
YL-38-22	6 X 4	40	0.250	54	6	2,160	15.304	33739.2	2410350	16	34	132	11	14	6	23	36	3	2	530	395	27	ACCEPT	90	ACCEPT	1-6			

**TRANSPORT**

\* Head Office /Bureau Chef

154 Hwy. 540B  
P.O. Box 390  
Gore Bay, ON  
POP 1H0  
Ph. 705-844-1789

www.manitoulintransport.com

**BILL OF LADING / CONNAISSEMENT**

Not negotiable / Non negociable

MANITOULIN TRANSPORT INC

LAKEHEAD FREIGHTWAYS INC.

JET TRANSPORT LTD

\* REGISTERED QUALITY SYSTEM  
ISO 9001:2000Customer Service **1-800-265-1485** Service à la clientèle

BILL OF LADING NO. / N° DE CONN.			MANITOULIN INTERNATIONAL MANITOULIN LOGISTICS INC. MOTOR EXPRESS TORONTO MOTOR EXPRESS MONTREAL QUEBEC EXPRESS INC.			1-800-265-2715 1-866-872-5872 1-905-564-0241 1-514-694-6600 1-800-361-3132			PLEASE PLACE TOP OF BAR CODE STICKER STRAIGHT ON DOTTED LINE S.V.P. PLACER LA PARTIE SUPÉRIEURE DU CODE À BARRE AUTOCOLLANT EN LIGNE DROITE SUR LE POINTILLÉ		
D/J	M	Y/A	SHIPPER / EXPÉDITEUR			CUSTOMER CODE CODE DU CLIENT			Declared Valuation \$ Valeur déclarée		
26	07	2006	NAME / NOM Aero Design Ltd.			ADDRESS / ADRESSE 2013 39th Avenue NE			Per: ..... Maximum liability of \$2.00 per pound ON THE ACTUAL WEIGHT OF THE SHIPMENT unless declared valuation states otherwise. A surcharge is applicable when the declared value is in excess of \$2.00 per pound. Responsabilité maximum de \$2.00/livre SUR LE POIDS RÉEL DE L'EXPÉDITION à moins d'indication contraire. Un supplément s'applique quand la valeur déclarée dépasse deux dollars la livre.		
CITY / VILLE Calgary, Alberta			CONSIGNEE / CONSIGNATAIRE			CUSTOMER CODE CODE DU CLIENT			FREIGHT CHARGES / FRAIS DE TRANSPORT PREPAID / PORT PAYÉ Bill Shipper / Facturer l'Expéditeur		
NAME / NOM Wilderness Helicopters			ADDRESS / ADRESSE Hold for pickup in Wawa			CITY / VILLE Wawa, Ontario			COLLECT / À PERCEVOIR Bill Consignee / Facturer le Destinataire		
ROUTING / CARRIER ROUTE / TRANSPORTEUR			TRANSFER POINT / POINT DE TRANSBORDEMENT			BILL THIRD PARTY FACTURER UNE TIERCE PARTIE			Cust.Code Code du Client		
PCS	DG MD (X)	PARTICULARS OF GOODS, MARKS AND EXCEPTIONS DESCRIPTION DES MARCHANDISES, MARQUES ET PARTICULARITÉS				DANGEROUS GOODS PROD. DANGEREUX		WEIGHT POIDS		Name & Address Nom et Adresse	
1		Metal Mesh Basket, Metal Tubes, Documents				CLASS U.N. PG		80 lbs			
<div>MANITOULIN TRANSPORT 1-800-265-1485</div> <div>10561205</div>											
P.O. #			REF#			SHIPPER'S #					
SHIPPER: PLEASE COMPLETE THE FOLLOWING / EXPÉDITEUR: S.V.P. REMPLIR CE QUI SUIT											
TOTAL NO. OF PIECES NOMBRE TOTAL DE COLIS		DIMENSIONS OF SHIPMENT / DIMENSIONS DU CHARGEMENT		TOTAL CUBIC FEET TOTAL PIEDS CUBES		TOTAL WEIGHT POIDS TOTAL		DIMENSIONAL WEIGHT / POIDS DIMENSIONNEL *			
1		76" 24" 18"						* 10 lb/cu.ft./li./p.c.			
1. Any agreement covering transportation of the goods described herein with other than due dispatch, or for specific time, must be endorsed on this bill of lading and signed by the parties hereto. 2. When a shipment is at shipper's risk, the words "At Shipper's Risk" must be entered and initialed by both parties hereto. 1. Toute entente spéciale concernant le transport des biens décrits ci-haut, soit heure spéciale de livraison ou autre, doit être indiquée sur ce connaissement et signée par les partis concernés. 2. Si la marchandise est expédiée au risque de l'expéditeur, les mots "Au risque de l'expéditeur" doivent être inscrits et initialed par les deux parties concernées.						C.O.D. <input type="checkbox"/> C.O.D FEE PREPAID FRAIS C.O.D. PAYÉS D'AVANCE AMOUNT / MONTANT \$ <input type="checkbox"/> C.O.D. FEE COLLECT FRAIS C.O.D. À PERCEVOIR C.O.D. charges will be collect unless marked prepaid. /Les frais C.O.D. seront à percevoir à moins d'avis contraire.					
SHIPPER / EXPÉDITEUR PER:				CARRIER / TRANSPORTEUR PER:				UNIT NO. / NO.D'UNITÉ 1110		CHECKER CONTRÔLEUR	
NOTE: UNCRATED MERCHANDISE AT SHIPPER'S RISK / THIS BILL OF LADING TO BE SIGNED BY SHIPPER AND CARRIER.				NOTE: MARCHANDISE NON-EMBALLÉE AU RISQUE DE L'EXPÉDITEUR / CE CONNAISSEMENT DOIT ÊTRE SIGNÉ PAR L'EXPÉDITEUR ET LE TRANSPORTEUR							



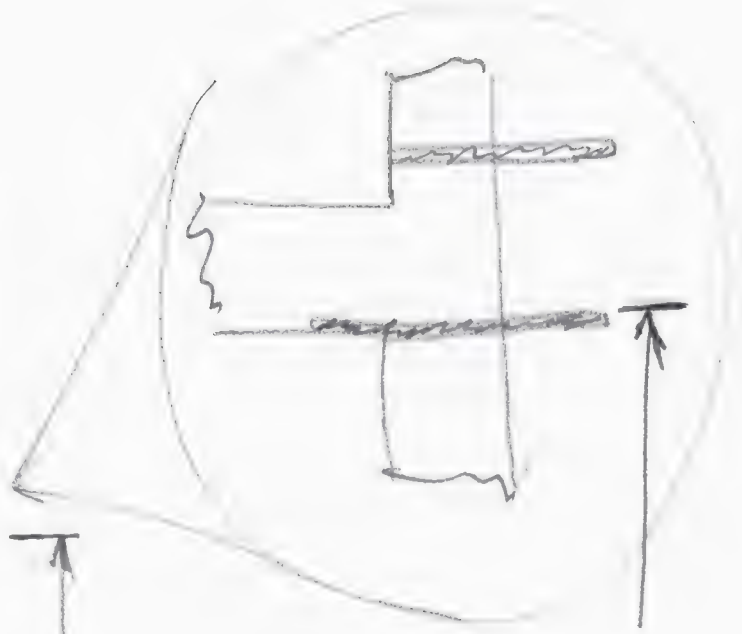
~~3rd INF 4  
TBL 1st 9~~

- COLLECT //

CHARGE IN  
MAIL TROU  
27 JULY/06

Let's follow up.

Shank



Carburetor Chelavatin  
Sinner was to get as  
this measurement  
for replacement  
handle



256-3-2791



DATE JUNE 7/06

SHIPPER'S NUMBER		BILL OF LADING NUMBER		PURCHASE ORDER NUMBER	
SHIPPER ACCOUNT NUMBER			CONSIGNEE ACCOUNT NUMBER		
SHIPPER (FROM) ARPO DESIGN LTD.			CONSIGNEE (TO) E+B HELICOPTERS		
STREET 2013 39th Ave NE			STREET 2595 ISLAND HIGHWAY		
CITY/PROVINCE CALGARY AB		POSTAL CODE T2E 6R7	CITY/PROVINCE CAMPBELL RIVER BC		POSTAL CODE V9W 2H2
FAX NUMBER 403-250-8333		ph. 403-250-8027	FAX NUMBER 250-287-4352		ph 250-287-4421
SPECIAL INSTRUCTIONS Phone to pre-pay with credit card			ROUTING		

Canadian Freightways  
Quote Number:

<b>Early Morning Delivery Service:</b> before 10:30 am <input type="checkbox"/> before 9:00 am <input type="checkbox"/> before 7:00 am <input type="checkbox"/>	Canadian Freightways Shortcut <input type="checkbox"/>	Canadian Freightways Urgent <input type="checkbox"/> Enter quote number in space above. Quote number required prior to shipping. Please call our Business Centre 1-800-561-5555.	Canadian Freightways Tradeshow Service <input type="checkbox"/>	Canadian Freightways 100 Canadian Freightways Air Overnight <input type="checkbox"/> Second Day <input type="checkbox"/> 3-5 Day Economy <input type="checkbox"/> Enter quote number in space above	Heat Required <input type="checkbox"/>
--	---	--	--	---	---

PIECES	DESCRIPTION OF ARTICLES AND SPECIAL MARKS	DANGEROUS GOODS			WEIGHT (LBS)	RATE	<b>FREIGHT CHARGES</b> <b>SHIPPER TO CHECK</b> <input checked="" type="checkbox"/> PREPAID <input type="checkbox"/> COLLECT If not indicated, shipment will automatically move collect.
		CLASS	PLN	PKG GRP	Indicate Dangerous Goods in Metric		
1	METAL MESH BASKET				70		<b>C.O.D.</b>  AMOUNT  \$  C.O.D. FEE <input type="checkbox"/> PREPAID <input type="checkbox"/> COLLECT INDICATE HERE IF SHIPPED AT OWNER'S RISK OF DAMAGE <input type="checkbox"/>

DANGEROUS GOODS DOCUMENTS ATTACHED ☐ YES ☐ NO

DANGEROUS GOODS DOCUMENTS ATTACHED ☐ YES ☐ NO

**EMERGENCY RESPONSE 24 HOUR NO.**

ERAP and 24 HOUR NO.

**DECLARED VALUATION:** MAXIMUM LIABILITY OF CARRIER IS \$2.00 PER LB. UNLESS  
DECLARED VALUATION STATES OTHERWISE. AN EXCESS VALUATION CHARGE OF 1% \$  
WILL BE ASSESSED ON VALUATION IN EXCESS OF \$2.00 PER LB.

## DIMENSIONS

TOTAL CUBIC FEET

**NOTICE OF CLAIM:** (a) No carrier is liable for loss, damage or delay to any goods under the Bill of Lading unless notice thereof setting out particulars of the alleged damage and date of shipment of the goods and the estimated amount claimed in respect of such loss, damage or delay is given in writing to the originating carrier or the delivering carrier within sixty (60) days after the delivery of the goods, or, in the case of failure to make delivery, within nine (9) months from the date of shipment. (b) The final settlement of the claim must be filed within nine (9) months from the date of shipment together with a copy of the paid freight bill. (c) Carrier(s) are not liable for goods shipped at "OWNER'S RISK," "SHIPPER'S LOAD & COUNT" and/or if not properly packaged or crated. (d) The agreed value on personal effects and/or used commodities does not exceed \$0.10 per pound, unless otherwise specified.

destination, if on its own authorized route or otherwise to cause to be carried by another carrier on the route to said destination, subject to the rates and classification in effect on the date of shipment.

It is mutually agreed, as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, including conditions set aside by the standard bill of lading, in power at the date of issuing, which are hereby agreed by the consignor and accepted for himself and his assigns.

The Contract for the carriage of the goods listed in the bill of lading is governed by regulation in force in the jurisdiction at the time and place of shipment and is subject to the conditions set out in such regulations.

**Debtor Responsibility:** Canadian Freightways Limited reserves the right to seek payment from the shipper on any balances owed where a Freight Forwarder, Broker, or Logistics Company fails to meet the terms of payment indicated.

PER <i>Chen</i>	PER <i>Robert</i>	UNIT NUMBER <i>007</i>	DATE <i>Feb 1</i>
SHIPPER <i>Chen</i>	CARRIER <b>CANADIAN FREIGHTWAYS</b>		TIME <i>11:00</i>

NUMBER OF PIECES RECEIVED ▲

**A TransForce Company**

# SCHEDULE OF CONDITIONS OF CARRIAGE

## 1. Liability of Carrier

The carrier of the goods herein described is liable for any loss of or damage to goods accepted by the carrier or the carrier's agent except as hereinafter provided.

## 2. Liability of Originating and Delivering Carriers

## 3. Recovery from Connecting Carriers

originating carrier or delivering carrier, as the case may be, is required to pay for the loss of or damage to the goods while they were in the custody of such other carrier.  
b. If there is a concealed damage settlement and the goods were interlined between carriers so that it is not clear as to who had custody of the goods when they were damaged, the carrier shall be liable for the full amount of the loss or damage to the goods, less the amount of the settlement received from the other carrier, and the carrier shall be entitled to recover from the other carrier the amount of the settlement received from the other carrier.

## 4. Remedy by Consignor or Consignee

Nothing in Article 2 or 3 deprives a consignor or consignee of any rights the consignor or consignee may have against any carrier.

## 5. Exceptions from Liability

or other commodities caused by natural shrinkage.

## 6. Delay

No carrier is bound to carry goods by any particular public truck or to time for any particular date or to deliver the goods at any particular place, unless specifically endorsed on the bill of lading and signed by the parties.

## 7. Routing by Carrier

## 8. Stoppage in Transit

If goods are stopped and held in transit at the request of the party entitled to do so, the carrier shall be liable for the loss of or damage to the goods.

## 9. Valuation

a. the value of the goods at the place and time of shipment, including the freight and other charges if paid; or  
maximum liability.

## 10. Maximum Liability

the Bill of Lading by the consignor.

## 11. Consignor's Risk

b. The burden of proving absence of negligence shall be on the carrier.

## 12. Notice of Claim

a. No carrier is liable for loss, damage or delay to any goods carried under the bill of lading unless notice thereof setting out particulars of the origin, destination and value of the goods is given to the carrier within sixty days after delivery of the goods or, in the case of failure to make delivery, within nine months from the date of shipment.  
b. The final statement of the claim must be filed within nine months from the date of shipment, together with a copy of the paid freight bill.

## 13. Articles of Extraordinary Value

a. No carrier is bound to carry any documents, specie, or articles of extraordinary value unless by a special agreement to do so.  
maximum liability of the maximum liability stipulated in Article 10.

## 14. Freight Charges

a. If required by the carrier, the freight and all other lawful charges accruing on the goods shall be paid before delivery.  
shipped with any additional charges lawfully payable thereon.

## 15. Dangerous Goods

Every person, whether as principal or agent, shipping dangerous goods without previous full disclosure to the carrier as required by law, shall indemnify the carrier against all loss, damage or delay caused by the failure to disclose and such goods may be warehoused at the consignor's risk and expense.

## 16. Undelivered Goods

and shall request disposal instructions.

b. Pending receipt of disposal instructions,

i. the goods may be stored in the warehouse of the carrier, subject to a reasonable charge for storage, or

## 17. Return of Goods

carrier may return to the consignor, at the consignor's expense, all undelivered shipments for which such notice has been given.

## 18. Alterations

originating carrier or their agents and unless signed and initialed shall be without effect.

## 19. Weights

a. It shall be the responsibility of the consignor to show correct shipping weights of the shipment on the bill of lading.

## 20. C.O.D. Shipments

a. A carrier shall not deliver a C.O.D. shipment unless payment is received in full.

otherwise on the bill of lading.

c. A carrier shall remit all C.O.D. money to the consignor, or person designated by the consignor, within fifteen days after collection.

d. A carrier shall keep all C.O.D. money in a trust fund or account separate from the other revenues and funds of the carrier's business.

e. A carrier shall include the charges for collecting and remitting money paid by consignees as a separate item in the schedule of rates.



**Heidi Lussi**  
**250-549-4161**

WEBSITE: [www.heidilussi.com](http://www.heidilussi.com)

E-MAIL: [heidi@heidilussi.com](mailto:heidi@heidilussi.com)

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Director of Maint.*



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# wedco

## Wedco gas containers

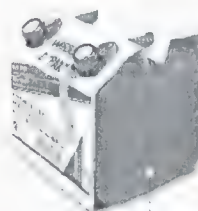
Your assurance of unsurpassed durability, quality, performance, and customer satisfaction. Compare these exclusive features:



**W-120**



**W-220**



**W-222**

2 pack



**W-320**



**W-120**

Display pack



**W-220**

Display pack



**W-500**



**W-520**



**W-620**

Model number	UPC	Capacity	Color	Case Dimensions	Shipping Weight/Pack	Cube
<b>W-120</b>	81012	U.S. gal.: 1 <sup>1</sup> / <sub>4</sub> Litres: 4.7	Red	L.: 21 in./53.3 cm W.: 18 <sup>1</sup> / <sub>4</sub> in./46.4 cm H.: 10 <sup>3</sup> / <sub>4</sub> in./27.3 cm	Lb.: 10.9 Kg.: 4.9 8/case	Ft. <sup>3</sup> : 2.4 m. <sup>3</sup> : 0.07
<b>W-120</b> Display pack	81012-D	U.S. gal.: 1 <sup>1</sup> / <sub>4</sub> Litres: 4.7	Red	L.: 41 <sup>3</sup> / <sub>4</sub> in./106 cm W.: 25 <sup>3</sup> / <sub>4</sub> in./65.7 cm H.: 27 in./68.4 cm	Lb.: 59.4 Kg.: 26.9 54/case	Ft. <sup>3</sup> : 16.8 m. <sup>3</sup> : 0.48
<b>W-220</b>	81022	U.S. gal.: 2 <sup>1</sup> / <sub>2</sub> Litres: 9.4	Red	L.: 22 <sup>3</sup> / <sub>4</sub> in./57.8 cm W.: 20 <sup>3</sup> / <sub>4</sub> in./51.4 cm H.: 12 <sup>1</sup> / <sub>4</sub> in./31.1 cm	Lb.: 12.75 Kg.: 5.78 6/case	Ft. <sup>3</sup> : 3.3 m. <sup>3</sup> : 0.09
<b>W-220</b> Display pack	81022-D	U.S. gal.: 2 <sup>1</sup> / <sub>2</sub> Litres: 9.4	Red	L.: 35 <sup>1</sup> / <sub>4</sub> in./89.7 cm W.: 23 <sup>3</sup> / <sub>4</sub> in./60 cm H.: 34 <sup>1</sup> / <sub>4</sub> in./87 cm	Lb.: 44.7 Kg.: 20.3 30/case	Ft. <sup>3</sup> : 16.5 m. <sup>3</sup> : 0.47
<b>W-222</b> 2 pack	81222	U.S. gal.: 2 <sup>1</sup> / <sub>2</sub> Litres: 9.4	Red	L.: 39 <sup>1</sup> / <sub>2</sub> in./100.3 cm W.: 36 in./91.4 cm H.: 44 <sup>3</sup> / <sub>4</sub> in./113.7 cm	Lb.: 148.7 Kg.: 67.4 36/pallet	Ft. <sup>3</sup> : 36.8 m. <sup>3</sup> : 1.04
<b>W-320</b>	81032	U.S. gal.: 4 Litres: 15	Red	L.: 26 <sup>1</sup> / <sub>4</sub> in./66.7 cm W.: 15 <sup>3</sup> / <sub>4</sub> in./40 cm H.: 23 <sup>1</sup> / <sub>4</sub> in./59.1 cm	Lb.: 18.6 Kg.: 8.45 6/case	Ft. <sup>3</sup> : 5.6 m. <sup>3</sup> : 0.16
<b>W-500</b>	81050	U.S. gal.: 5.8 Litres: 22	Red	L.: 29 in./73.7 cm W.: 15 <sup>3</sup> / <sub>4</sub> in./40 cm H.: 19 in./48.3 cm	Lb.: 15.7 Kg.: 7.14 4/case	Ft. <sup>3</sup> : 5 m. <sup>3</sup> : 0.14
<b>W-520</b>	81052	U.S. gal.: 5 Litres: 20	Red	L.: 29 <sup>1</sup> / <sub>2</sub> in./74.9 cm W.: 15 in./38.1 cm H.: 24 in./61 cm	Lb.: 19.5 Kg.: 8.9 6/case	Ft. <sup>3</sup> : 6.2 m. <sup>3</sup> : 0.17
<b>W-620</b>	81062	U.S. gal.: 6.6 Litres: 25	Red	L.: 33 in./83.8 cm W.: 16 <sup>3</sup> / <sub>4</sub> in./42.5 cm H.: 25 in./63.5 cm	Lb.: 27 Kg.: 12.24 6/case	Ft. <sup>3</sup> : 8 m. <sup>3</sup> : 0.23

- Patented Versaflex® spout holds its shape at all pouring angles.
- Fully approved by CSA, UL, and Massachusetts Fire Marshall.
- Sleek tapered profile lowers center of gravity.
- Rugged "leatherette" type non-slip finish.
- Screw-on vent cap with protector tab.
- Bottom hand hold.
- Moulded tab for stopper prevents loss.
- See-through sight line (W-120, W-220 only).
- Full range from 5L/1.25 US gal to 25L/6.6 US gal.

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AERO DESIGN LTD.

CARGO BASKET

S/N 49201-30      DATE OF MFG.

MAXIMUM PERMISSIBLE LOAD

**200 LBS TOTAL**

**75 LBS./BAY**

AERO DESIGN LTD.

CARGO BASKET

DATE OF MFG.

MAXIMUM PERMISSIBLE LOAD

**200 LBS TOTAL**

**75 LBS./BAY**

AERO DESIGN LTD.

CARGO BASKET

S/N 49201-31      DATE OF MFG.

MAXIMUM PERMISSIBLE LOAD

**200 LBS TOTAL**

**75 LBS./BAY**

AERO DESIGN LTD.

CARGO BASKET

DATE OF MFG.

MAXIMUM PERMISSIBLE LOAD

**200 LBS TOTAL**

**75 LBS./BAY**



Transport Canada Transports Canada

Department of Transport

## Supplemental Type Certificate

This approval is issued to:

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada T2E 6R7

**Number:** SH00-48

**Issue No.:** 5

**Approval Date:** December 08, 2000

**Issue Date:** June 09, 2006

**Responsible Office:**

Prairie and Northern

**Aircraft/Engine Type or Model:**

BELL 206L, 206L-1, 206L-3, 206L-4, 407

**Canadian Type Certificate or Equivalent:**

H-92

**Description of Type Design Change:**

Installation of Cargo Basket / External Attachment  
Provisions/Auxiliary step.

**Installation/Operating Data,  
Required Equipment and Limitations:**

**Bell 407 only:**

**407 Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 0, dated 10 May 2006, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 3 May 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)



**Conditions:** This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.

D.S. Austen  
For Minister of Transport

Canada



(Continuation Sheet)

Number: SH00-48 Issue 5

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**Bell 407 only: (Continued)**

**407 Configuration B - External Cargo Basket Low Mounted**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 2, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 1, dated 01 February 2005, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration C - External Cargo Basket Installation High Mounted**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)





(Continuation Sheet)

Number: SH00-48 Issue 5

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**Bell 407 only: (Continued)**

**407 Configuration C - External Cargo Basket Installation High Mounted (continued)**

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

**407 Configuration C- External Cargo Basket Installation Low Mounted Quick Release**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 0, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 0, dated 5 May 2006, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 0, dated 20 April 2006, or later accepted revision is required with this installation.

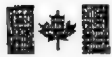
Basis of Certification is defined by the applicable Type Certificate Data Sheets.

**Bell 206L, L-1, L-3, L-4 only:**

**206L Series Configuration A - External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

(continued on page 4)



(Continuation Sheet)

Number: SH00-48 Issue 5

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**Bell 206L, L-1, L-3, L-4 only:** (continued)

**206L Series Configuration A - External Attachment Provisions Only:** (continued)

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

**206L Series Configuration B - External Cargo Basket Low Mounted:**

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision 5, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 1, dated 25 June 2002, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)



(Continuation Sheet)

Number: SH00-48 Issue 5

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

**206L Series Configuration C - External Cargo Basket Installation Low Mounted Quick Release**

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 0, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 0, dated 5 May 2006, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 0, dated 20 April 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

**All Models (Bell 206L series and 407)**

**Auxiliary Step Installation:**

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 Jan 2005, or later approved revision.

The auxiliary step is optional and is not required with installation of Configuration B or C.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 amendment 27-30.

(continued on page 6)



*(Continuation Sheet)*

Number: SH00-48 Issue 5

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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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All Models (Bell 206L series and 407)(continued)



**Cargo Basket Modifications:**

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.


— End —



# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
69810	Cargo Basket Assembly	0
69811	Basket Body Assembly	0
69812	Basket Lid Assembly	0
69821	Basket Components - End Hoop	0
69823	Basket Components - Lugs	0
69824	Basket Components - Rim	0
69825	Basket Components - Spine	0
69826	Basket Components - Strut	0
69827	Basket Components - Placard	0
49210	Basket Components - Hoops	1
49212	Basket Components - Rim	0
49213	Basket Components - Lid Brace	1
49215	Basket Components - Spacer	0
49216	Basket Components - Spacer	0
36255	Handle Assembly	1
36261	Handle Bar Assembly	1
36262	Handle Bracket Assembly	1
36271	Handle Lever	0
36272	Basket Bracket	0
36273	Lid Bracket	0
36274	Bushing	0
36275	Bushing	1
36276	Spring Hook	0
36277	Handle Bar	0
36278	Spring	1
36280, Sheet 1	Brace	2
36280, Sheet 2	Brace	2
<b>ENGINEERING DOCUMENTS</b>		
ER698.01	Engineering Report	0
<div> <div> APPROVAL: <div>  Transport Canada </div> <div>  Transport Canada </div> </div> <div> AIRCRAFT CERTIFICATION DIVISION <b>APPROVED</b> By <i>[Signature]</i> App'l No. <u>5400-48</u> App'l Date <u>00-12-08</u> Issue No. <u>5</u> Issue Date <u>06-06-09</u> YY-MM-DD </div> </div> <div> ORIGINAL DATE: 3 May, 2006 REVISION DATE:   </div> <div> <b>AERO DESIGN LTD.</b> 2013 - 39<sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 </div>		
SHEET 1 OF 1		Quick Release Cargo Basket Assembly
<b>DCL698-1</b>		Rev. <b>0</b>

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
69830 69831	Forward Beam Fabrication Aft Beam Fabrication	0 0
<b>ENGINEERING DOCUMENTS</b>		
ER698.02 TP698.03	Engineering Report Test Plan	0 0
<b>APPROVAL:</b>  Transport Canada    Transport Canada <b>AIRCRAFT CERTIFICATION DIVISION</b> <b>APPROVED</b> <i>B. D. S. Austin</i> Appl No. <u>SH00-48</u> Appl Date <u>00-12-03</u> Issue No. <u>5</u> Issue Date <u>06-06-09</u> <small>YY-MM-DD</small>		
<b>ORIGINAL DATE:</b> 3 May, 2006 <b>REVISION DATE:</b>		<b>AERO DESIGN LTD.</b> 2013 - 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
SHEET 1 OF 1		<b>Quick Release Mounting Beams</b>
<b>DCL698-2</b>		Rev. <b>0</b>

## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 698.90

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### QUICK RELEASE CARGO BASKET

#### Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Cargo Basket assembled in accordance with AERO Design Ltd. Document Control List DCL698-1, Revision 0, and DCL698-2, Revision 0, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 0  
Date: 20 April, 2006

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AERO Design Ltd.  
Engineering Consultants

2013 – 39<sup>th</sup> Avenue N.E., Calgary, Alberta T2E 6R7  
Phone: (403) 250-8027  
Fax: (403) 250-8333  
E-Mail: [aerodesign@telusplanet.net](mailto:aerodesign@telusplanet.net)

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**RECORD OF REVISIONS**

Revision Number	Issue Date	Date Inserted	By
0			Original Issue

**LIST OF EFFECTIVE PAGES**

List of Revisions                      Revision 0 (Original Issue)    20 April, 2006

## List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	0
Revision Record/List of Effective Pages	2	0
Table of Contents	3	0
00-00-00	4-6	0
04-00-00	7	0
05-00-00	8-9	0
11-00-00	11	0
25-50-00	12-14	0



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## CHAPTER 0 – INTRODUCTION

### 0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Cargo Basket as described herein.

### 0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness

LH - Left Hand

RH - Right Hand

### 0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Cargo Basket. Requests for a copy may be made in writing to:

AERO Design Ltd.  
2013 39<sup>th</sup> Avenue N.E.  
Calgary, Alberta  
T2E 6R7  
Fax: 403-250-8333  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### 0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

## 0-5 GENERAL DESCRIPTION

The cargo basket installation is a metal mesh basket installed to the side of the helicopter on beams attached to landing gear fittings with attachment provisions incorporated. The quick release basket allows for the installation and removal of the basket without tools, allowing a pilot operating in the field without maintenance support to install or remove the basket.

The basket itself is 75.75" long, 22.5" wide, and 17" high. It is made of a 4130 steel welded tubing structure, and lined with expanded steel mesh. The basket has a hinged lid with a self-locking handle.

The beams are steel tubing which attach to the landing gear fittings and stick out from the side of the helicopter. The quick release mechanism is built into the beams.

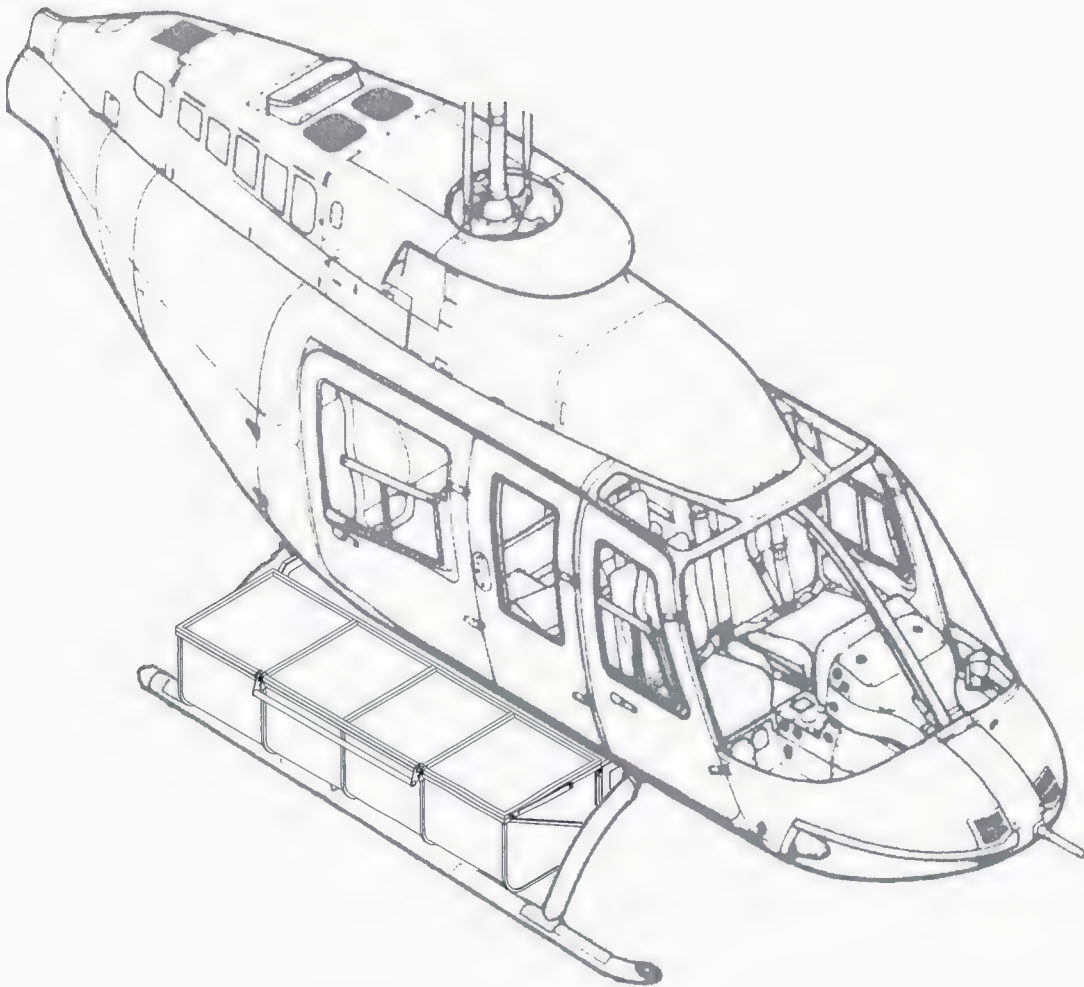


Figure 1 – Cargo Basket Installation

## 0-6 STRUCTURAL PROVISIONS

The External Attachment Provisions are installed on the helicopter in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407). That installation is separate from the basket installation. The External Attachment Provisions are not included in this ICA.

The external attachment provisions consist of replacement landing gear fittings that incorporate a barrel nut for installing equipment. Each fitting is bolted to the lower fuselage and landing gear with the same fasteners as used for the original fittings, as shown in Figure 2.

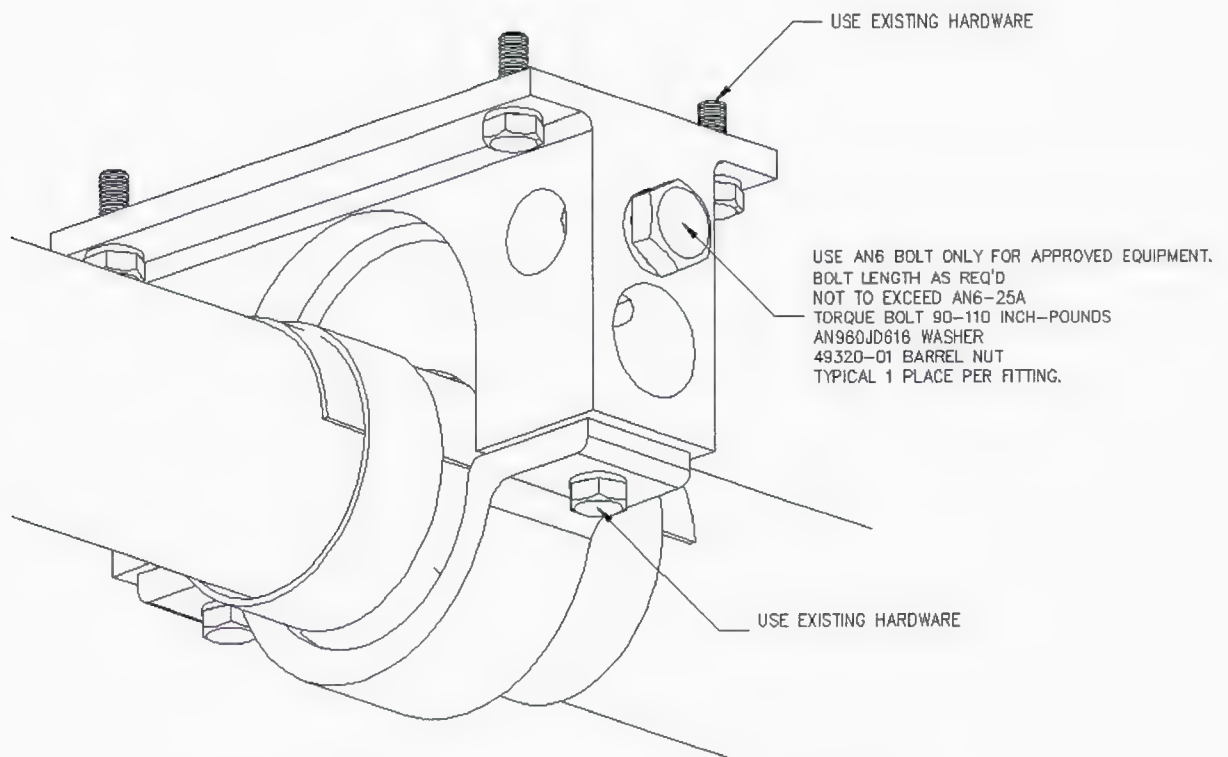


Figure 2 - Installation of External Attachment Provisions



## **CHAPTER 4 - AIRWORTHINESS LIMITATIONS**

The Airworthiness Limitations section is Transport Canada-approved and specifies maintenance required under Section 571 of the Canadian Aviation Regulations, unless an alternative program has been approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Cargo Basket.

## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Cargo Basket.

#### *Daily Inspection*

1. Inspection Area: Basket
  - a) Inspect the basket attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.
  - b) Inspect latching of the lid for correct operation. If basket is bent inward the lid will close but may not latch.

#### *300 Hour or Annual Inspection*

1. Inspection Area: Basket
  - a) Visually inspect tube-to-tube welds and mesh-to-tube welds for cracks, corrosion or other damage.
  - b) Visually inspect basket mesh for damage.
2. Inspection Area: Beams
  - a) Visually inspect beams attaching basket to the helicopter for cracks, corrosion or other damage.
  - b) Visually inspect lugs attaching the basket to the beams for security and damage.
  - c) Visually inspect bolts attaching beams to external attachment provisions for security and damage.

#### *Special Inspections*

Following a hard landing inspect the Quick Release Cargo Basket installation in accordance with the 300 hour or annual inspection listed above.

## 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

### 1. Basket

- a) Repair Basket in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, as required.
- b) Basket is fabricated from the following materials:
  - Lid and Rim:  $\frac{3}{4}$ " x 0.035" square 4130 steel tube
  - Frames:  $\frac{1}{2}$ " x 0.035" square 4130 steel tube
  - Mesh:  $\frac{3}{4}$ " 16 ga. (0.040") expanded carbon steel mesh
- c) Touch up with polyurethane paint as required following repairs.

### 2. Beams

DO NOT REPAIR DAMAGE TO BEAMS IF BEYOND THE LIMITS BELOW.

- a) Nicks and/or gouges on the top or bottom face up to 0.030" deep and 0.125" wide may be dressed out to a smooth contour.
- b) Nicks and/or gouges on the side faces up to 0.060" deep and 0.125" wide may be dressed out to a smooth contour.
- c) Do not repair the hook for the upper basket attachment if spread beyond the limits shown in Figure 3.

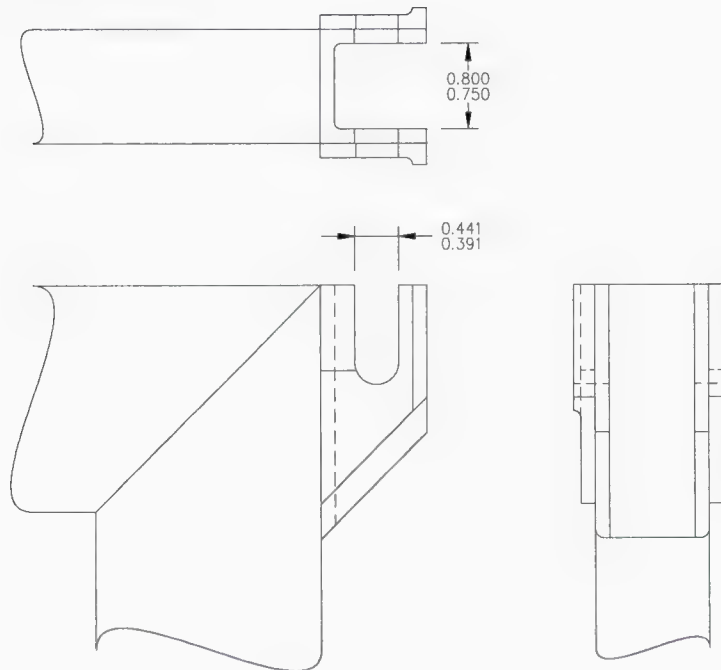


Figure 3 - Hook

- d) Attempt to insert 13/32 drill shank into bottom end of hook slot. If drill can be inserted, slot is worn beyond limit.
- e) Touch up with polyurethane paint as required following repairs.

### 5-3 PROTECTIVE TREATMENT INFORMATION

#### 1. Beams

The beams are supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

#### 2. Cargo Basket

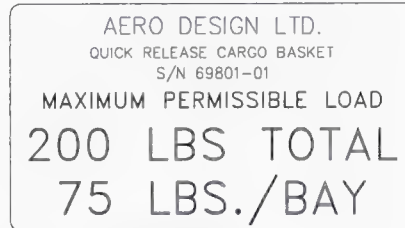
The cargo basket is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.



**CHAPTER 11 – MARKINGS AND PLACARDS**

The following markings and placards are used with the Quick Release Cargo Basket Installation in the locations noted:

- a) Located on basket lid:



- b) Located on top of forward beam: 69830-01  
c) Located on top of aft beam: 69831-01

## CHAPTER 25 – EQUIPMENT AND FURNISHINGS

### SECTION 50 – CARGO COMPARTMENTS

#### 25-1 BEAMS INSTALLATION

Refer to Figure 4.

1. External Attachment Provisions installed in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407) are required prior to installing the Beams.
2. Locate 69830-01 Forward Beam on aft side of Forward Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.
3. Locate 69831-01 Aft Beam on forward side of Aft Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.

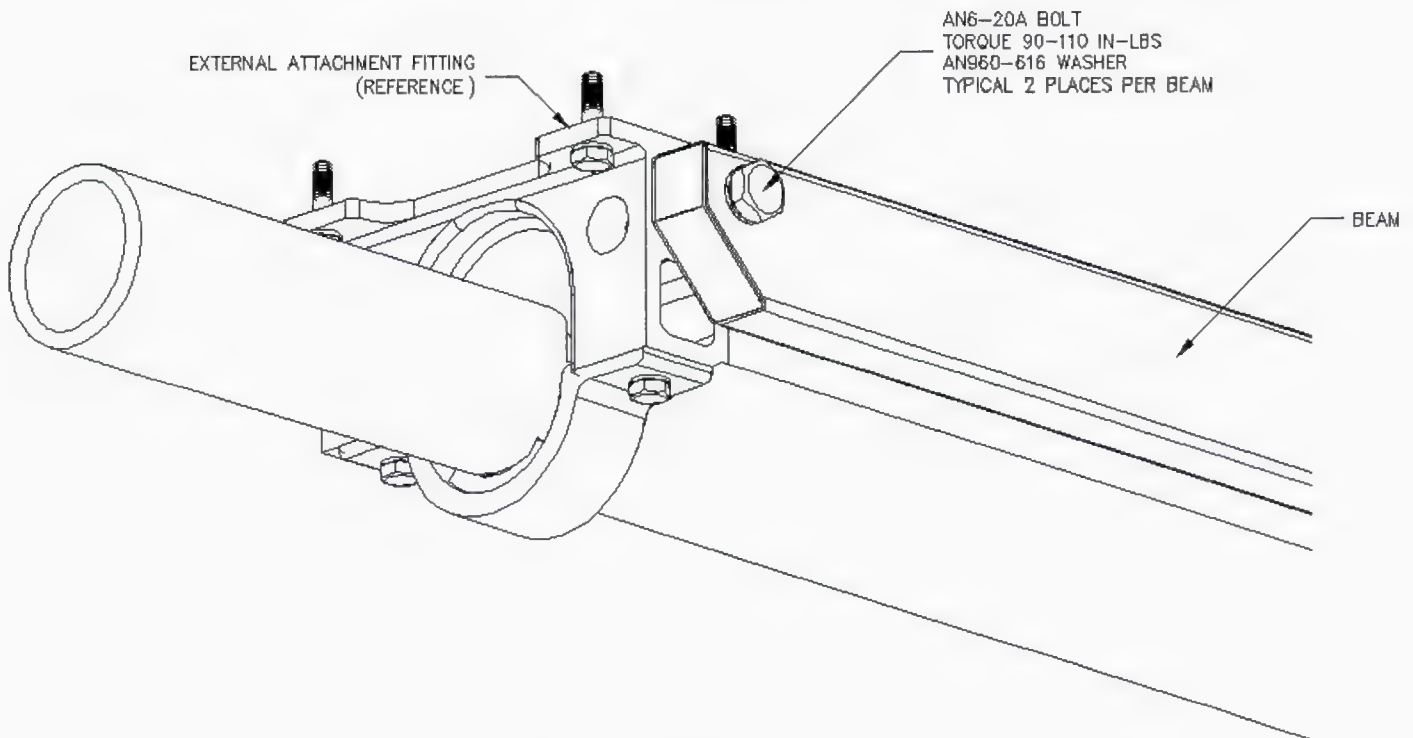


Figure 4 - Beams

#### 25-2 BEAMS REMOVAL

Refer to Figure 4.

1. Remove Cargo Basket. Refer to section 25-4.
2. Remove two AN6-20A Bolt and AN960-616 Washer from 69830-01 Forward Beam. Remove Forward Beam.

3. Remove two AN6-20A Bolt and AN960-616 Washer from 69831-01 Aft Beam. Remove Aft Beam.

### 25-3 BASKET INSTALLATION

Refer to Figure 5.

1. Set basket upper attachment into hook on forward and aft beams.
2. At forward end of basket, lift until lower attachment fitting can enter keyway. Push stop in and slide fitting down into keyway. Push down until locked.
3. Repeat step 2 for aft end.

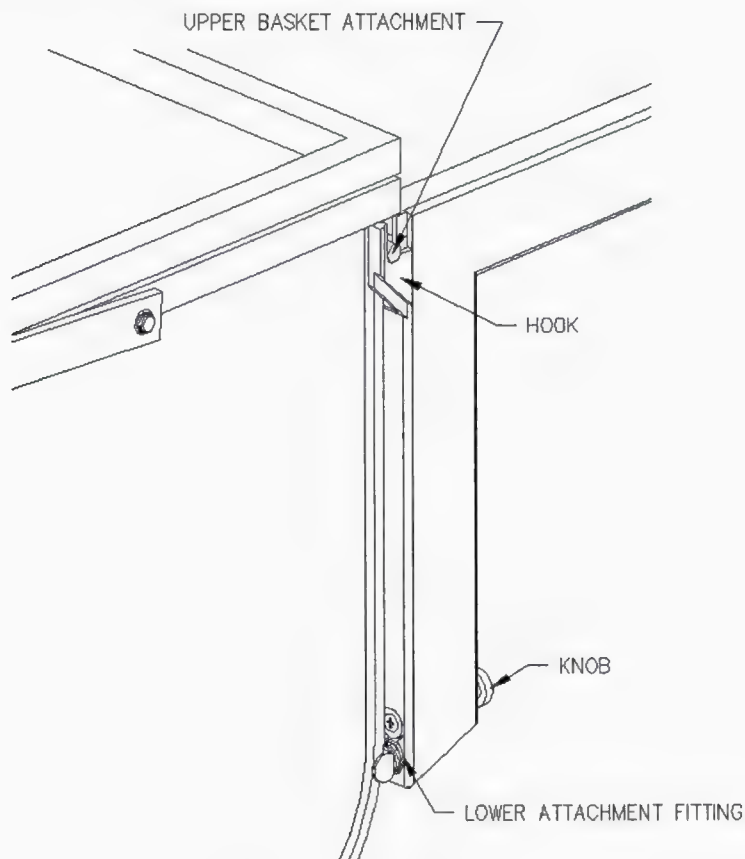


Figure 5 – Basket Attachment

### 25-4 BASKET REMOVAL

Refer to Figure 8.

1. Pull knob at bottom end of forward beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in hook on beam.
2. Pull knob at bottom end of aft beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in hook on beam.
3. Lift basket off hooks and remove from helicopter.

**25-5 WEIGHT AND BALANCE**

Two weight and balance configurations are required for the pilot. The first is the complete installation of Cargo Basket and Beams. The second is Beams only as the basket may be removed in the field by the pilot.

Configuration 1		Weight (lbs)	Longitudinal		Lateral	
Part #	Name		Arm (in)	Moment (in-lbs)	Arm (in)	Moment (in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
69810-01	Cargo Basket	45.0	114.1	5134.5	38.5	1732.5
Total		64.9	113.9	7389.8	30.3	1966.1

Configuration 2		Weight (lbs)	Longitudinal		Lateral	
Part #	Name		Arm (in)	Moment (in-lbs)	Arm (in)	Moment (in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
Total		19.9	113.3	2255.3	11.7	233.6

**25-6 STRUCTURAL FASTENER DATA**

Refer to Bell Standard Practices Manual BHT-ALL-SPM for torque values not listed in this ICA.

## FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS		AE-100 No.: AE698-1 Initial Issue Date: 25 May, 2006  Revision: 0 Revision Date:  Approval No.: SH00-48  Delegation No.: 290M Delegate Name: E. Burgoin Classification of Designee: Employer: AERO Design Ltd.
Aircraft Mfrgr: Bell Aircraft Model: 206L Series, 407 Registration: All Eligible	Model Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>	

LIST OF APPROVED REPORTS AND DATA		
Document Number	Document Title	Compliance Status
DCL698-1	Revision 0 Document Control List and all documents referred to therein	
ER698.01	Revision 0 Engineering Report	
69810	Revision 0 Cargo Basket Assembly	
69811	Revision 0 Basket Body Assembly	
69812	Revision 0 Basket Lid Assembly	
69821	Revision 0 Basket Components - End Hoop	
69823	Revision 0 Basket Components - Lugs	
69824	Revision 0 Basket Components - Rim	
69825	Revision 0 Basket Components - Spine	
69826	Revision 0 Basket Components - Strut	
69827	Revision 0 Basket Components - Placard	
49210	Revision 1 Basket Components - Hoops	
49212	Revision 0 Basket Components - Rim	
49213	Revision 1 Basket Components - Lid Brace	
49215	Revision 0 Basket Components - Lug	
49216	Revision 0 Basket Components - Lug	
36255	Revision 1 Handle Assembly	
36261	Revision 1 Handle Bar Assembly	
36262	Revision 1 Handle Bracket Assembly	
36271	Revision 0 Handle Lever	
36272	Revision 0 Basket Bracket	
36273	Revision 0 Lid Bracket	
36274	Revision 0 Bushing	
36275	Revision 1 Bushing	
36276	Revision 0 Spring Hook	
36277	Revision 0 Handle Bar	
36278	Revision 1 Spring	
36280, Sht. 1/2	Revision 2 Brace	
36280, Sht. 1/2	Revision 2 Brace	
DATA APPROVED BY TRANSPORT CANADA		

CERTIFICATION

UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIREMENTS.

I THEREFORE ☐ RECOMMEND FOR APPROVAL OF THESE DATA

☒ APPROVE THESE DATA

E. Burgoin, DAR 290M



# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
69810	Cargo Basket Assembly	0
69811	Basket Body Assembly	0
69812	Basket Lid Assembly	0
69821	Basket Components - End Hoop	0
69823	Basket Components - Lugs	0
69824	Basket Components - Rim	0
69825	Basket Components - Spine	0
69826	Basket Components - Strut	0
69827	Basket Components - Placard	0
49210	Basket Components - Hoops	1
49212	Basket Components - Rim	0
49213	Basket Components - Lid Brace	1
49215	Basket Components - Spacer	0
49216	Basket Components - Spacer	0
36255	Handle Assembly	1
36261	Handle Bar Assembly	1
36262	Handle Bracket Assembly	1
36271	Handle Lever	0
36272	Basket Bracket	0
36273	Lid Bracket	0
36274	Bushing	0
36275	Bushing	1
36276	Spring Hook	0
36277	Handle Bar	0
36278	Spring	1
36280, Sheet 1	Brace	2
36280, Sheet 2	Brace	2
<b>ENGINEERING DOCUMENTS</b>		
ER698.01	Engineering Report	0
APPROVAL:	ORIGINAL DATE: 3 May, 2006 REVISION DATE:	<b>AERO DESIGN LTD.</b> 2013 – 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
	SHEET 1 OF 1	<b>Quick Release Cargo Basket Assembly</b>
	<b>DCL698-1</b>	Rev. <b>0</b>

# FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS		AE-100 No.: AE698-2 Initial Issue Date: 25 May, 2006  Revision: 0 Revision Date:  Approval No.: SH00-48  Delegation No.: 290M Delegate Name: E. Burgoin Classification of Designee: Employer: AERO Design Ltd.	
Aircraft Mfr: Bell Aircraft Model: 206L Series, 407 Registration: All Eligible		Model Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>	
LIST OF APPROVED REPORTS AND DATA			
Document Number		Document Title	Compliance Status
DCL698-2	Revision 0	Document Control List and all documents referred to therein	
ER698.02	Revision 0	Engineering Report	
TP698.03	Revision 0	Test Plan	
69830	Revision 0	Forward Beam Fabrication	
69831	Revision 0	Aft Beam Fabrication	
		DATA APPROVED BY TRANSPORT CANADA	
CERTIFICATION  UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIREMENTS.			
I THEREFORE <input type="checkbox"/> RECOMMEND FOR APPROVAL OF THESE DATA <input checked="" type="checkbox"/> APPROVE THESE DATA			
 E. Burgoin, DAR 290M			

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>  69830 69831	Forward Beam Fabrication Aft Beam Fabrication	0 0
<b>ENGINEERING DOCUMENTS</b>  ER698.02 TP698.03	Engineering Report Test Plan	0 0
APPROVAL:	ORIGINAL DATE: 3 May, 2006  REVISION DATE:	<b>AERO DESIGN LTD.</b> 2013 – 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
	SHEET 1 OF 1	<b>Quick Release Mounting Beams</b>
	<b>DCL698-2</b>	Rev.  <b>0</b>



DRAFT

GIVEN TO JACK

Department of Transport

## Supplemental Type Certificate

**This approval issued to:**

AERO Design Ltd.  
2013 - 39th Avenue NE  
Calgary, Alberta  
T2E 6R7

**Approval Number:** SH00-48

**Issue Number.:** 5

**Date of Approval:** 8 December, 2000

**Date of Issue:** May, 2006

**Responsible Office:** Prairie and Northern

**Aircraft / Engine Type:** Bell

**Registration:** All Eligible

**Model:** 206L, L-1, L-3, L-4  
407

**Serial No.:** All Eligible

**Canadian Type Certificate or Equivalent:** H-92

**Description of Design Change:** Installation Of Cargo Basket / External Attachment Provisions  
Installation Of Auxiliary Step

**Required Equipment and Limitations:**

**Bell 407 Only:**

**Configuration A – External Attachment Provisions Only:**

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL700, Rev. 0, dated 10 May 2006, or later approved revision.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA700.90, Revision 0, dated 3 May 2006 is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006 is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

(see continuation sheet...)

Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the modified product.

**For the Minister of Transport**

## Continuation Sheet

Approval Number: SH00-48

Issue Number: 5

Date of Approval: 8 December, 2000

Date of Issue: May, 2006

### Approval Data (Continued):

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

### Bell 407 Only (Continued):

#### Configuration B – External Cargo Basket Installation (Low Mounted):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved, AERO Design Ltd., Document Control List DCL606, Revision 2, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 1, dated 01 February, 2005 is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 0, dated 4 May 2006 is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets.

#### Configuration C – External Cargo Basket Installation (High Mounted):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push-out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 1, dated 01 February 2005 is required with this installation.

Transport Canada approved, AERO Design Ltd., Maintenance Instructions MI 606.01, Revision 2, dated 19 July 2004 is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets.

#### Configuration D – External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved, AERO Design Ltd., Document Control List DCL701, Revision 0, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 701.90, Revision 0, dated 5 May, 2006 is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA698.90, Revision 0, dated 20 April 2006 is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets.



## Continuation Sheet

Approval Number: SH00-48

Issue Number: 5

Date of Approval: 8 December, 2000

Date of Issue: May, 2006

### Approval Data (Continued):

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

### Bell 206L, L-1, L-3, L-4 Only:

#### Configuration A – External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL493, Rev. 6, dated 10 May 2006, or later approved revision.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002 is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA493.90, Revision 0, dated 4 May 2006 is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

#### Configuration B – External Cargo Basket Installation (Low Mounted):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the cargo basket is to be completed in accordance with Transport Canada Approved, AERO Design Ltd., Document Control List DCL492, Revision 5, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 1, dated 25 June 2002 is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 0, dated 4 May 2006 is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-24.

#### Configuration C – External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved, AERO Design Ltd., Document Control List DCL702, Revision 0, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 702.90, Revision 0, dated 5 May, 2006 is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA698.90, Revision 0, dated 20 April 2006 is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets.

## Continuation Sheet

Approval Number: SH00-48

Issue Number: 5

Date of Approval: 8 December, 2000

Date of Issue: May, 2006

### Approval Data (Continued):

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

### All Models (Bell 206L Series and 407):

#### Auxiliary Step Installation:

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Rev. 0, dated 13 January 2005, or later approved revision.

The Auxiliary Step is optional and is not required with cargo basket installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets.

#### Cargo Basket Modifications:

Modifications to the above listed cargo basket configurations to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Rev. 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

25 May, 2006

Transport Canada  
Aircraft Certification Division  
11<sup>th</sup> Floor, Canada Place  
9700 Jasper Avenue  
Edmonton, Alberta  
T5J 4E6

Attn: Jack Staal

Your File # : SH00-48

Our File # : Various

Re: Cargo Basket Approval Revisions

Jack,

Here is a description of the changes included in the package given to you today.

**DCL493**

1. Both the front and rear fittings have been modified because we are using CNC machining to fabricate the complete part. The "pockets" on the ends are enlarged because of the ease of including them using CNC (much longer to do on a manual milling machine). The net cross-sectional area of the fitting is unchanged because the width and depth remain the same as the original configuration. This is also similar to the original fittings from Bell.
2. The rear fitting has been changed to add 1/4" to the forward face. This is to allow the attachments to be in the same position on the Bell 206L and 407.
3. ICA493.90 replaces MI 493.01.

**DCL492-1**

1. Fabrication of the basket has been moved to DCL492-1, so only 1 document needs to be called up for both the 206L and 407 configurations.
2. New beams are included, made of HSS steel to be used as an alternative to the existing aluminum beams. Engineering Report ER492.03 provides the substantiation of the beams, as well as the test you witnessed this morning (bending moment at the helicopter attachment is the same).

**DCL492 and DCL606**

1. The installation drawing has been changed to remove the spacers and shorten the bolts for installing the basket. This is due to increasing the length of the rear fitting noted above. Also the new beams are referenced as an alternative on the drawing.
2. DCL492-1 is now referenced for fabrication documents.
3. ICA 492.90 is now referenced on the installation documents. Maintenance Instructions have been removed.

*Allows direct  
interchange without  
spacers  
Eliminates  
Part #*

*OK*

**AERO DESIGN LTD.**

2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027

Fax: 403-250-8333

aerodesign@telusplanet.net

**DCL700 (New)**

1. The installation drawing for Bell 407 external attachment provisions is 60602. It was referenced on both DCL606 and DCL606-1. To allow for possible installation of equipment on the external attachment provisions separate from the cargo basket, the installation is moved to a separate DCL, with FMS and ICA. This is the same as for the Bell 206L, on DCL493.

**DCL698-1 (New)**

1. Fabrication of the quick release cargo basket.

**DCL698-2 (New)**

1. Fabrication of the beams for the quick release cargo basket.

**DCL701 and DCL702 (New)**

1. Installation of quick release basket, including FMS and ICA698.90

**DCL704 (New)**

1. Modifications to the basic baskets, with limitations noted on the drawing.

Regards,

Jeff Clarke, Technologist

Encl.

*AERO* Design Ltd.

**ENGINEERING REPORT  
ER698.01**

---

**QUICK RELEASE CARGO BASKET**

Approved: E. Burgoin, P. Eng.

Revision 0  
Date: 5 April, 2006

---

AERO Design Ltd.  
Engineering Consultants

2013 – 39<sup>th</sup> Avenue N.E., Calgary, Alberta T2E 6R7  
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## 1.0 INTRODUCTION

There have been numerous requests from operators to allow the use of quick-release pins (pip-pins) on the Aero Design cargo basket. The attachments from the beam to the basket are not correct for the intended use of pip-pins, which require double shear and no bending to prevent the pin from coming out.

As an alternative to allowing the use of pip-pins, the mounting beams and basket attachments have been re-designed. The new configuration consists of a hook attachment at the top of the basket and a keyway near the bottom. The keyway is blocked by a spring loaded pin that must be pushed in to install or remove the basket. Since there are no tools required, the basket can be installed or removed by a pilot.

Basket construction remains the same as the original low mounted basket, but the length is increased by about 2" so the front and rear hoops are now aligned with the beams.

## 2.0 REFERENCE

AERO Design Ltd. drawing 69810  
MIL-HDBK-5

## 3.0 BASIS OF CERTIFICATION

Bell 407, TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

This installation:

Same as the basis of certification as shown the Type Certificate Data Sheet.

## 4.0 ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)

AD CF-2004-03 relates to high stresses imposed on the landing gear cross tubes during run on landings, and introduces an RIN (Retirement Index Number) on the landing gear cross tubes. This installation does not affect compliance with AD CF-2004-03.

Two AD's requiring a lower  $V_{NE}$  have been issued (CF-1998-36, CF-2001-01). CF-2001-01 has been rescinded. CF-1998-36 is still in effect. This installation does not affect compliance with AD CF-1998-36, as the flight manual supplement states that if the  $V_{NE}$  of the existing flight manual is more restrictive to use the lower value.

## 5.0 LOADS

BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor:  $n_{e\_up} := 1.5$   
 Ultimate Forward Emergency Landing Load Factor:  $n_{e\_fwd} := 4.0$   
 Ultimate Sideward Emergency Landing Load Factor:  $n_{e\_side} := 2.0$   
 Ultimate Downward Emergency Landing Load Factor:  $n_{e\_down} := 4.0$

FAR 27.625 Fitting Factor (does not apply to articles being tested):  $n_{ff} := 1.15$

FAR 27.303 Safety Factor:  $n_{sf} := 1.5$

FAR 27.337(a) Limit Positive Maneuvering LoadFactor:  $n_{man} := 3.5$

$n_{man\_ult} := n_{man} \cdot n_{sf}$  Ultimate Positive Maneuvering LoadFactor:  $n_{man\_ult} = 5.25$

Limit Negative Maneuvering LoadFactor:  $n_{man\_n} := -1.0$

$n_{man\_neg\_u} := n_{man\_n} \cdot n_{sf}$  Ultimate Negative Maneuvering LoadFactor:  $n_{man\_neg\_u} = -1.5$

CRITICAL ULTIMATE LOAD FACTORS:

Downward: Ultimate Positive Maneuvering LoadFactor:  $n_{man\_ult} = 5.25$

Forward: Ultimate Forward Emergency Landing Load Factor:  $n_{e\_fwd} = 4.00$

Sideward: Ultimate Sideward Emergency Landing Load Factor:  $n_{e\_side} = 2.00$

Upward: Ultimate Upward Emergency Landing Load Factor:  $n_{e\_up} = 1.50$

Note: The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

## 5.1 Inertia Loads

$$W_{\text{basket}} := 55 \cdot \text{lbf} \quad \text{Weight of basket}$$

$$W_{\text{cargo}} := 200 \cdot \text{lbf} \quad \text{Weight of cargo (max)}$$

$$W_{\text{beam}} := 10 \cdot \text{lbf} \quad \text{Weight of beam (each)}$$

$$W_{\text{total}} := W_{\text{basket}} + W_{\text{cargo}} + W_{\text{beam}} \cdot 2$$

$$W_{\text{total}} = 275 \cdot \text{lbf} \quad \text{Total weight of basket installation (with cargo)}$$

The aft beam is critical as the spacing on the helicopter attachments are closer on the aft beam than on the forward beam.

Assuming 1/2 cargo is at the aft end:

$$P_{\text{end}} := \frac{W_{\text{basket}}}{2} + \frac{W_{\text{cargo}}}{2} + W_{\text{beam}}$$

$$P_{\text{end}} = 138 \cdot \text{lbf} \quad \text{Total weight on aft end of basket}$$

$$P_{\text{ult}} := P_{\text{end}} \cdot n_{\text{man\_ult}}$$

$$P_{\text{ult}} = 722 \cdot \text{lbf} \quad \text{Ultimate load due to basket installation on aft beam (1/2 cargo)}$$

Assuming 2/3 cargo is at the aft end:

$$P_{\text{end}} := \frac{W_{\text{basket}}}{2} + W_{\text{cargo}} \cdot \frac{2}{3} + W_{\text{beam}}$$

$$P_{\text{end}} = 171 \cdot \text{lbf} \quad \text{Total weight on aft end of basket}$$

$$P_{\text{ult}} := P_{\text{end}} \cdot n_{\text{man\_ult}}$$

$$P_{\text{ult}} = 897 \cdot \text{lbf} \quad \text{Ultimate load due to basket installation on aft beam (2/3 cargo)}$$

## 5.2 Drag Load

$$l_{\text{basket}} := 75.75 \cdot \text{in}$$

Length of basket.

$$w_{\text{basket}} := 22 \cdot \text{in}$$

Width of basket.

$$h_{\text{basket}} := 16 \cdot \text{in}$$

Height of basket.

$$A_f := w_{\text{basket}} \cdot h_{\text{basket}}$$

$$A_f = 352 \cdot \text{in}^2$$

Frontal Area of basket.

$$A_p := l_{\text{basket}} \cdot w_{\text{basket}}$$

$$A_p = 1666 \cdot \text{in}^2$$

Planar Area of basket.

$$\frac{l_{\text{basket}}}{w_{\text{basket}}} = 3.4$$

Fineness ratio of basket

$$C_{Do} := 1.6$$

Drag Coefficient of Basket, (overestimated)  
(Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

$$V_{ne} := 140 \cdot \text{knots}$$

Never-Exceed-Speed of Bell 407.  
(Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 156 \cdot \text{knots}$$

Design Dive Speed of Bell 407

$$\text{Drag} := \frac{\rho \cdot V_d^2}{2} \cdot A_f \cdot C_{Do}$$

$$\text{Drag} = 321 \cdot \text{lbf}$$

Drag on basket.

$$P_{\text{drag\_ult}} := \text{Drag} \cdot n_{sf} \cdot n_{ff}$$

$$P_{\text{drag\_ult}} = 553 \cdot \text{lbf}$$

Ultimate applied Drag load on basket.

$$P_{\text{drag\_test}} := \text{Drag} \cdot n_{sf}$$

$$P_{\text{drag\_test}} = 481 \cdot \text{lbf}$$

Ultimate Drag load on basket in Static Test.

$$AC_{\text{drag}} := 38.5 \cdot \text{in}$$

Lateral Aerodynamic Center of basket.

$$P_{\text{drag\_test\_beam}} := \frac{\text{Drag} \cdot n_{sf}}{2}$$

$$P_{\text{drag\_test\_beam}} = 240 \cdot \text{lbf}$$

Ultimate Drag load on beam in Static Test.



## **6.0 STRUCTURAL COMPLIANCE**

### **6.1 Basket**

The basket is only slightly longer than the previously approved basket. The original basket was load tested. Refer to ER492.02 for load test. The drag load from this installation is higher as the design dive speed of the Bell 407 is higher than the Bell 206L. The required drag load to be tested is 481 lb. The basket was tested to 530 lb.

A compression strut is added to the front and rear hoops of the basket. This is to distribute the load applied toward the outboard side of the basket back to the beam attachment.

The strength of the basket attachments to the beams and the compression strut is demonstrated in section 6.2.

The basket has been considered and acceptable for this installation.

### **6.2 Beams**

Strength of the beams and the attachment of the basket to the beams is demonstrated by test. Refer to ER698.02 for testing.

The beams were demonstrated to be acceptable for this installation.

### **6.3 Attachment Provisions**

The attachment provisions are the same as analyzed in ER606.01 and tested ER606.02. There is no change to that configuration. Additionally, the same attachment configuration as tested in ER606.02 was tested in ER698.02.

The attachments are acceptable.

***AERO*** Design Ltd.

**STRUCTURAL TEST PLAN  
TP698.03**

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**QUICK RELEASE CARGO BASKET  
BEAMS**

Revision 0  
Date: 18 May, 2006

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**AERO Design Ltd.**  
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## 1.0 INTRODUCTION

Aero Design Ltd. is the holder of STC SH0048 which provides for the installation of a cargo basket on the right hand side of Bell 206 L series and Bell 407 helicopter between the landing gear cross-tubes and below the passenger cabin door. The basket is supported by aluminum beams bolted to the front and aft end of the baskets that are attached to modified landing gear attachment fittings.

It has become a desirable feature to be able to quickly remove the basket from the helicopter for both ground handling and flight operations that does not require the used of tools.

A new design for attaching the cargo basket to the support beams has been implemented that allows for quick installment and detachment without the use of tools. The aluminum beam construction has also been altered and new beams built from 2" x 1" rectangular tubing have been used.

The landing gear attachment fittings to which the basket support beams are secured are approved in STC SH0048 and remain unaltered physically, allowable loads or the loads which are applied to them by this installation.

The cargo basket assembly is approved in STC SH0048 and remains unchanged except for its attachment to the support beams.

The purpose of this test is to demonstrate compliance with the structural requirements FAR 27.303, 27.305 and 27.307) to support drag loads at Vd (FAR 27.301(b)) and the maneuvering load conditions (FAR 27.337) with the new support beams installed.

## 2.0 REFERENCE

AERO Design Ltd. drawing 69830 – forward support beam

AERO Design Ltd. drawing 69831 – aft support beam

## 3.0 BASIS OF CERTIFICATION

Bell 407, TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

This installation:

Same as the basis of certification as shown the Type Certificate Data Sheet.

#### 4.0 ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)

AD CF-2004-03 relates to high stresses imposed on the landing gear cross tubes during run on landings, and introduces an RIN (Retirement Index Number) on the landing gear cross tubes. This installation does not affect compliance with AD CF-2004-03.

Two AD's requiring a lower  $V_{NE}$  have been issued (CF-1998-36, CF-2001-01). CF-2001-01 has been rescinded. CF-1998-36 is still in effect. This installation does not affect compliance with AD CF-1998-36, as the flight manual supplement states that if the  $V_{NE}$  of the existing flight manual is more restrictive to use the lower value.



## 5.0 LOADS

### BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor:	$n_{e\_up} := 1.5$
Ultimate Forward Emergency Landing Load Factor:	$n_{e\_fwd} := 4.0$
Ultimate Sideward Emergency Landing Load Factor:	$n_{e\_side} := 2.0$
Ultimate Downward Emergency Landing Load Factor:	$n_{e\_down} := 4.0$

FAR 27.625      Fitting Factor (does not apply to articles being tested):  $n_{ff} := 1.15$

FAR 27.303      Safety Factor:  $n_{sf} := 1.5$

FAR 27.337(a)      Limit Positive Maneuvering LoadFactor:  $n_{man} := 3.5$

$n_{man\_ult} := n_{man} \cdot n_{sf}$       Ultimate Positive Maneuvering LoadFactor:  $n_{man\_ult} = 5.25$

Limit Negative Maneuvering LoadFactor:  $n_{man\_n} := -1.0$

$n_{man\_neg\_u} := n_{man\_n} \cdot n_{sf}$       Ultimate Negative Maneuvering LoadFactor:  $n_{man\_neg\_u} = -1.5$

### CRITICAL ULTIMATE LOAD FACTORS:

Downward:	Ultimate Positive Maneuvering LoadFactor:	$n_{man\_ult} = 5.25$
Forward:	Ultimate Forward Emergency Landing Load Factor:	$n_{e\_fwd} = 4.00$
Sideward:	Ultimate Sideward Emergency Landing Load Factor:	$n_{e\_side} = 2.00$
Upward:	Ultimate Upward Emergency Landing Load Factor:	$n_{e\_up} = 1.50$

Note: The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

## 5.1 Inertia Loads

$$W_{\text{basket}} := 55 \cdot \text{lbf} \quad \text{Weight of basket}$$

$$W_{\text{cargo}} := 200 \cdot \text{lbf} \quad \text{Weight of cargo (max)}$$

$$W_{\text{beam}} := 10 \cdot \text{lbf} \quad \text{Weight of beam (each)}$$

$$W_{\text{total}} := W_{\text{basket}} + W_{\text{cargo}} + W_{\text{beam}} \cdot 2$$

$$W_{\text{total}} = 275 \cdot \text{lbf} \quad \text{Total weight of basket installation (with cargo)}$$

The aft beam is critical as the spacing on the helicopter attachments are closer on the aft beam than on the forward beam.

Assuming 1/2 cargo is at the aft end:

$$P_{\text{end}} := \frac{W_{\text{basket}}}{2} + \frac{W_{\text{cargo}}}{2} + W_{\text{beam}}$$

$$P_{\text{end}} = 138 \cdot \text{lbf} \quad \text{Total weight on aft end of basket}$$

$$P_{\text{ult}} := P_{\text{end}} \cdot n_{\text{man\_ult}}$$

$$P_{\text{ult}} = 722 \cdot \text{lbf} \quad \text{Ultimate load due to basket installation on aft beam (1/2 cargo)}$$

Assuming 2/3 cargo is at the aft end:

$$P_{\text{end}} := \frac{W_{\text{basket}}}{2} + W_{\text{cargo}} \cdot \frac{2}{3} + W_{\text{beam}}$$

$$P_{\text{end}} = 171 \cdot \text{lbf} \quad \text{Total weight on aft end of basket}$$

$$P_{\text{ult}} := P_{\text{end}} \cdot n_{\text{man\_ult}}$$

$$P_{\text{ult}} = 897 \cdot \text{lbf} \quad \text{Ultimate load due to basket installation on aft beam (2/3 cargo)}$$

## 5.2 Drag Load

$$l_{\text{basket}} := 75.75 \cdot \text{in}$$

Length of basket.

$$w_{\text{basket}} := 22 \cdot \text{in}$$

Width of basket.

$$h_{\text{basket}} := 16 \cdot \text{in}$$

Height of basket.

$$A_f := w_{\text{basket}} \cdot h_{\text{basket}}$$

$$A_f = 352 \cdot \text{in}^2$$

Frontal Area of basket.

$$A_p := l_{\text{basket}} \cdot w_{\text{basket}}$$

$$A_p = 1666 \cdot \text{in}^2$$

Planar Area of basket.

$$\frac{l_{\text{basket}}}{w_{\text{basket}}} = 3.4$$

Fineness ratio of basket

$$C_{D0} := 1.6$$

Drag Coefficient of Basket, (overestimated)  
(Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

$$V_{ne} := 140 \cdot \text{knots}$$

Never-Exceed-Speed of Bell 407.  
(Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 156 \cdot \text{knots}$$

Design Dive Speed of Bell 407

$$\text{Drag} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f C_{D0}$$

$$\text{Drag} = 321 \cdot \text{lbf}$$

Drag on basket.

$$p_{\text{drag\_ult}} := \text{Drag} \cdot n_{sf} \cdot n_{ff}$$

$$p_{\text{drag\_ult}} = 553 \cdot \text{lbf}$$

Ultimate applied Drag load on basket.

$$p_{\text{drag\_test}} := \text{Drag} \cdot n_{sf}$$

$$p_{\text{drag\_test}} = 481 \cdot \text{lbf}$$

Ultimate Drag load on basket in Static Test.

$$AC_{\text{drag}} := 38.5 \cdot \text{in}$$

Lateral Aerodynamic Center of basket.

$$p_{\text{drag\_test\_beam}} := \frac{\text{Drag} \cdot n_{sf}}{2}$$

$$p_{\text{drag\_test\_beam}} = 240 \cdot \text{lbf}$$

Ultimate Drag load on beam in Static Test.

## 6.0 STRUCTURAL COMPLIANCE

### 6.1 Beams

Strength of the beams and the attachment of equipment to the beams is demonstrated by test. The aft beam is critical since the positioning of the left and right landing gear attachment fittings are closer together for the aft l/g cross-tube than the forward l/g cross-tube.

#### 6.1.1 Test Setup

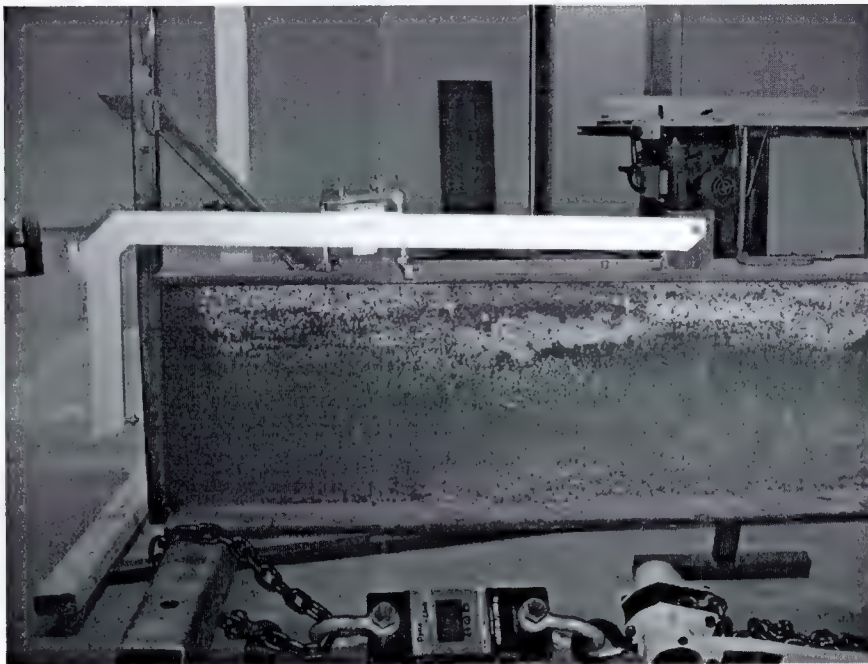
A landing gear attachment block was fabricated in accordance with drawing 60620. A scrap Bell 407 aft landing gear fitting is used for the test with the block installed as shown on drawing 60602. The landing gear fitting is then attached to a heavy steel channel to support the beam, as it would be installed on the helicopter. The fitting closest to the basket is critical.

The assembly is installed on a large I beam, with the aft beam extending off the end. The channel section with the landing gear fitting is welded near the end of the I beam. A channel was welded to the I beam to secure the other support beam attachment with a 3/8 bolt.

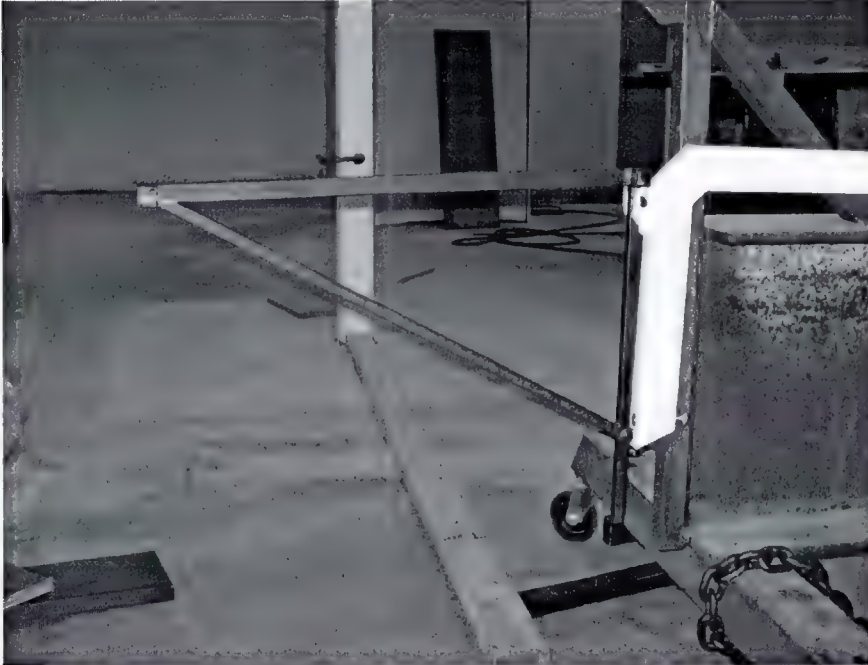
A representative section of the aft end of the basket has been fabricated, including the compression strut and basket attachments. This section is then installed on the aft beam.

The drag load is applied with a ring fitting installed on a piece of seat track clamped to the inboard edge of the basket section, and pulled with a come-along. The maneuvering load is applied by stacking bags of lead shot on the basket section, with the centre of gravity at the lateral centre of gravity of the basket.

The test setup is shown in the following pictures



**Figure 1 Aft Support Beam Mounted on Testing Fixture**



**Figure 2 Representative Basket Section Mounted on Support Beam**

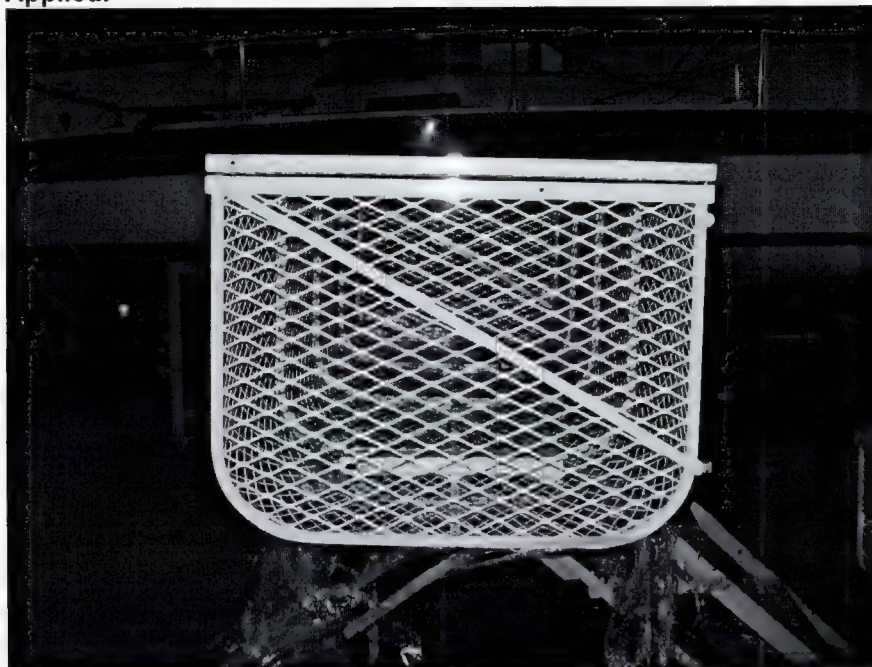


**Figure 3 Attachment Ring for Applying Drag Load**

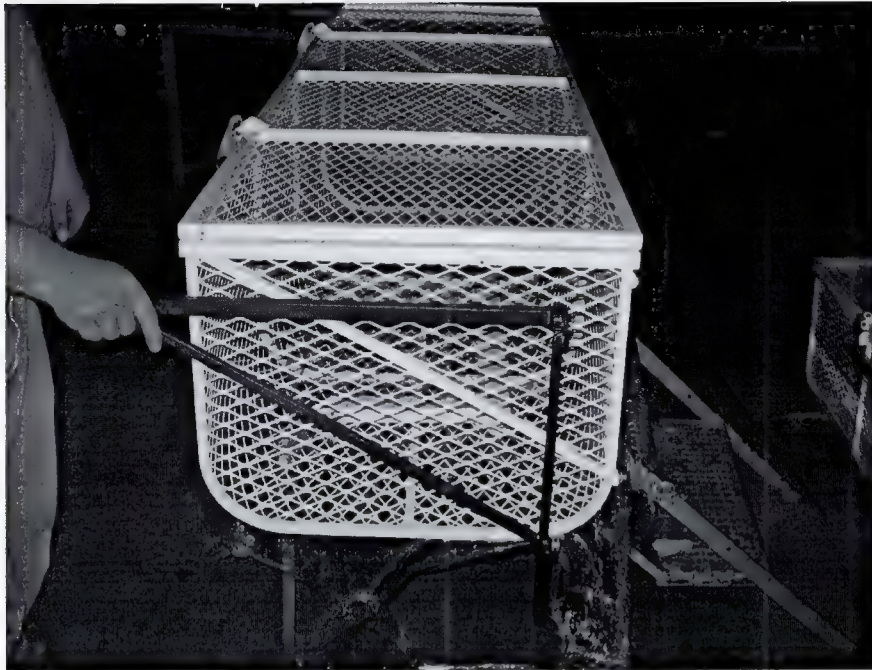




**Figure 4** Frame to simulate end of Cargo Basket onto which Maneuvering Load to be Applied.



**Figure 5** End View of actual Basket



**Figure 6**

**Test – Steel Beam**

Limit drag and maneuvering condition loads are applied simultaneously.

The loads are to be removed and the structure to be inspected for signs of permanent deformation.

Ultimate drag and maneuvering condition loads are then applied simultaneously.

Ultimate loads are to be applied for a minimum of three seconds without structural failure.

**6.1.2 Test – Stainless Steel Beam**

Limit drag and maneuvering condition loads are applied simultaneously.

The loads are to be removed and the structure to be inspected for signs of permanent deformation.

Ultimate drag and maneuvering condition loads are then applied simultaneously.

Ultimate loads are to be applied for a minimum of three seconds without structural failure.

*AERO* Design Ltd.

**ENGINEERING REPORT  
ER698.02**

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**QUICK RELEASE CARGO BASKET  
BEAMS**

Approved: E. Burgoin, P. Eng.

Revision 0  
Date: 5 April, 2006

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*AERO* Design Ltd.  
Engineering Consultants

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6.1.3	Test – Stainless Steel Beam	9



## 1.0 INTRODUCTION

Substantiation of the beams has been separated from the basket assembly because the beams may be used for the installation of other equipment in the future. The design loads on the beams are assumed to be those of the basket and will be used to determine the limitations.

## 2.0 REFERENCE

AERO Design Ltd. drawing 69830, 69831

AERO Design Ltd. Test Plan TP698.03

MIL-HDBK-5

## 3.0 BASIS OF CERTIFICATION

Bell 407, TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

This installation:

Same as the basis of certification as shown the Type Certificate Data Sheet.

## 4.0 ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)

AD CF-2004-03 relates to high stresses imposed on the landing gear cross tubes during run on landings, and introduces an RIN (Retirement Index Number) on the landing gear cross tubes. This installation does not affect compliance with AD CF-2004-03.

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## 5.0 LOADS

### BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor:	$n_{e\_up} := 1.5$
Ultimate Forward Emergency Landing Load Factor:	$n_{e\_fwd} := 4.0$
Ultimate Sideward Emergency Landing Load Factor:	$n_{e\_side} := 2.0$
Ultimate Downward Emergency Landing Load Factor:	$n_{e\_down} := 4.0$

FAR 27.625      Fitting Factor (does not apply to articles being tested):  $n_{ff} := 1.15$

FAR 27.303      Safety Factor:  $n_{sf} := 1.5$

FAR 27.337(a)      Limit Positive Maneuvering LoadFactor:  $n_{man} := 3.5$

$n_{man\_ult} := n_{man} \cdot n_{sf}$       Ultimate Positive Maneuvering LoadFactor:  $n_{man\_ult} = 5.25$

Limit Negative Maneuvering LoadFactor:  $n_{man\_n} := -1.0$

$n_{man\_neg\_u} := n_{man\_n} \cdot n_{sf}$       Ultimate Negative Maneuvering LoadFactor:  $n_{man\_neg\_u} = -1.5$

### CRITICAL ULTIMATE LOAD FACTORS:

Downward:	Ultimate Positive Maneuvering LoadFactor:	$n_{man\_ult} = 5.25$
Forward:	Ultimate Forward Emergency Landing Load Factor:	$n_{e\_fwd} = 4.00$
Sideward:	Ultimate Sideward Emergency Landing Load Factor:	$n_{e\_side} = 2.00$
Upward:	Ultimate Upward Emergency Landing Load Factor:	$n_{e\_up} = 1.50$

Note: The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

## 5.1 Inertia Loads

$$W_{\text{basket}} := 55 \cdot \text{lbf} \quad \text{Weight of basket}$$

$$W_{\text{cargo}} := 200 \cdot \text{lbf} \quad \text{Weight of cargo (max)}$$

$$W_{\text{beam}} := 10 \cdot \text{lbf} \quad \text{Weight of beam (each)}$$

$$W_{\text{total}} := W_{\text{basket}} + W_{\text{cargo}} + W_{\text{beam}} \cdot 2$$

$$W_{\text{total}} = 275 \cdot \text{lbf} \quad \text{Total weight of basket installation (with cargo)}$$

The aft beam is critical as the spacing on the helicopter attachments are closer on the aft beam than on the forward beam.

Assuming 1/2 cargo is at the aft end:

$$P_{\text{end}} := \frac{W_{\text{basket}}}{2} + \frac{W_{\text{cargo}}}{2} + W_{\text{beam}}$$

$$P_{\text{end}} = 138 \cdot \text{lbf} \quad \text{Total weight on aft end of basket}$$

$$P_{\text{ult}} := P_{\text{end}} \cdot n_{\text{man\_ult}}$$

$$P_{\text{ult}} = 722 \cdot \text{lbf} \quad \text{Ultimate load due to basket installation on aft beam (1/2 cargo)}$$

Assuming 2/3 cargo is at the aft end:

$$P_{\text{end}} := \frac{W_{\text{basket}}}{2} + W_{\text{cargo}} \cdot \frac{2}{3} + W_{\text{beam}}$$

$$P_{\text{end}} = 171 \cdot \text{lbf} \quad \text{Total weight on aft end of basket}$$

$$P_{\text{ult}} := P_{\text{end}} \cdot n_{\text{man\_ult}}$$

$$P_{\text{ult}} = 897 \cdot \text{lbf} \quad \text{Ultimate load due to basket installation on aft beam (2/3 cargo)}$$

## 5.2 Drag Load

$$l_{\text{basket}} := 75.75 \cdot \text{in}$$

Length of basket.

$$w_{\text{basket}} := 22 \cdot \text{in}$$

Width of basket.

$$h_{\text{basket}} := 16 \cdot \text{in}$$

Height of basket.

$$A_f := w_{\text{basket}} \cdot h_{\text{basket}}$$

$$A_f = 352 \cdot \text{in}^2$$

Frontal Area of basket.

$$A_p := l_{\text{basket}} \cdot w_{\text{basket}}$$

$$A_p = 1666 \cdot \text{in}^2$$

Planar Area of basket.

$$\frac{l_{\text{basket}}}{w_{\text{basket}}} = 3.4$$

Fineness ratio of basket

$$C_{D0} := 1.6$$

Drag Coefficient of Basket, (overestimated)  
(Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

$$V_{ne} := 140 \cdot \text{knots}$$

Never-Exceed-Speed of Bell 407.  
(Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 156 \cdot \text{knots}$$

Design Dive Speed of Bell 407

$$\text{Drag} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{D0}$$

$$\text{Drag} = 321 \cdot \text{lbf}$$

Drag on basket.

$$P_{\text{drag\_ult}} := \text{Drag} \cdot n_{sf} \cdot n_{ff}$$

$$P_{\text{drag\_ult}} = 553 \cdot \text{lbf}$$

Ultimate applied Drag load on basket.

$$P_{\text{drag\_test}} := \text{Drag} \cdot n_{sf}$$

$$P_{\text{drag\_test}} = 481 \cdot \text{lbf}$$

Ultimate Drag load on basket in Static Test.

$$AC_{\text{drag}} := 38.5 \cdot \text{in}$$

Lateral Aerodynamic Center of basket.

$$P_{\text{drag\_test\_beam}} := \frac{\text{Drag} \cdot n_{sf}}{2}$$

$$P_{\text{drag\_test\_beam}} = 240 \cdot \text{lbf}$$

Ultimate Drag load on beam in Static Test.

## 6.0 STRUCTURAL COMPLIANCE

### 6.1 Beams

Strength of the beams and the attachment of equipment to the beams is demonstrated by test. As stated previously, the aft beam is critical.

#### 6.1.1 Test Setup

The test was prepared in accordance with Transport Canada accepted Test Plan TP698.03.

#### 6.1.2 Test – Steel Beam

A steel aft beam was fabricated in accordance with drawing 69831. Material is 2 x 1 x 0.125 wall steel, per CSA G40.21 50W. The beam was installed on the test jig and the frame section was installed on the beam.

The maneuvering and drag loads were applied simultaneously. The limit maneuvering load for 2/3 cargo at the aft end ( $171 \text{ lbs} \times 3.5 = 599 \text{ lbs}$ ) was applied by stacking bags of lead shot on the frame section. The down load was applied with 21 bags of lead shot (25 lbs each), a steel plate (50 lbs), and a channel (25 lbs), for a total of 600 lbs.

The limit drag ( $321 \text{ lbs} / 2 = 160 \text{ lbs}$ ) was applied with a come-along attached to a load cell.



Figure 1 – Limit Load Test (600 lb. Down)



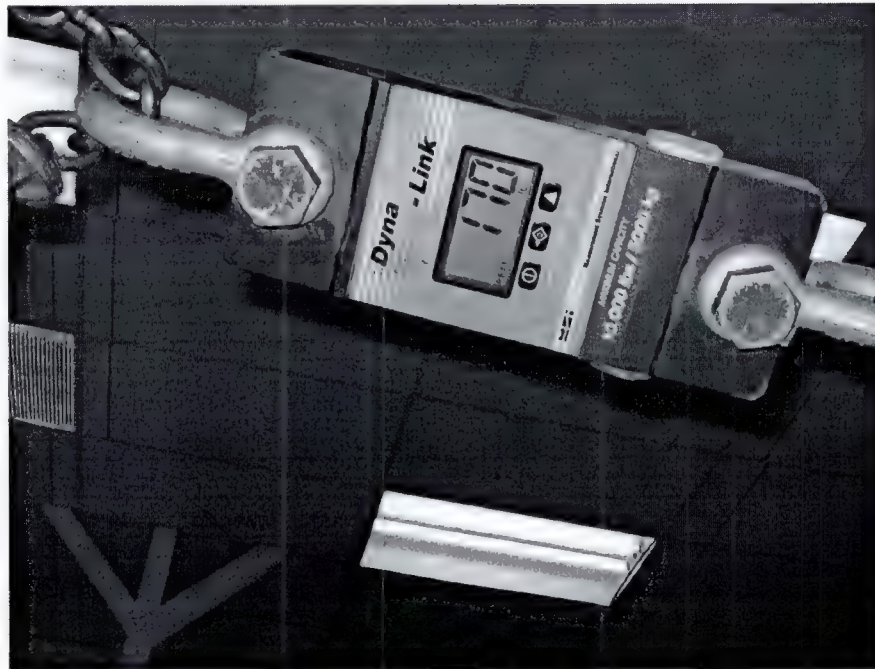


Figure 2 – Limit Drag Load

The load was removed and the beam checked for permanent deformation. There was no permanent deformation of the beam.

The 600 lbs was loaded back on the frame. The test continued by adding bags of lead shot to reach 925 lbs, ultimate load with 2/3 cargo at the aft end. The drag load was increased to ultimate of 240 lbs.



Figure 3 – Ultimate Load Test (925 lb. Down)

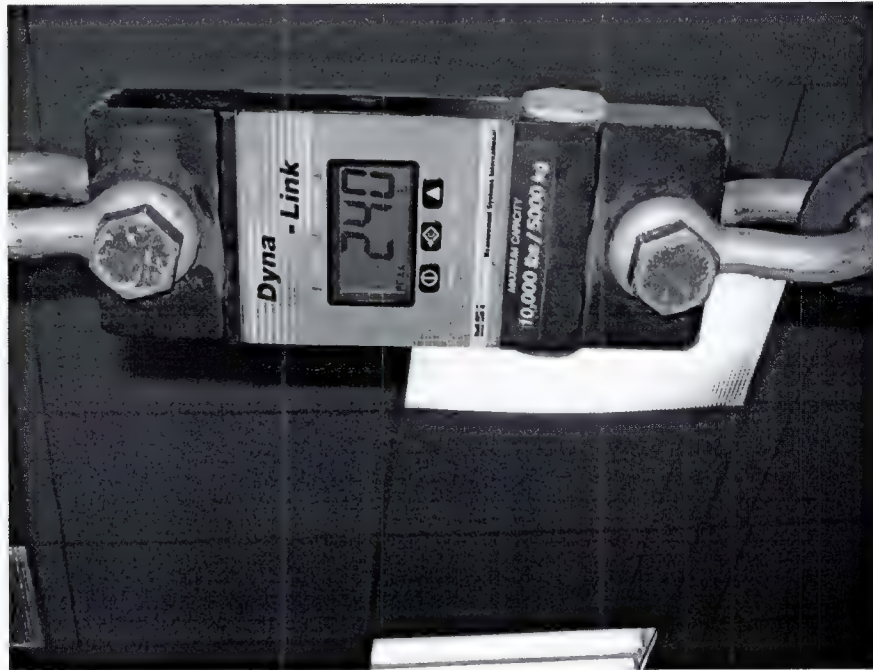


Figure 4 – Ultimate Drag Load

The channel section was used for stabilizing the stack only. The ultimate loads were applied for greater than 3 seconds. The beam did not fail. There was no permanent deformation of the basket attachments. The steel beams are sufficient for installation of the cargo basket.

#### 6.1.3 Test – Stainless Steel Beam

A stainless steel aft beam was fabricated in accordance with drawing 69831. Material is 2 x 1 x 0.125 wall steel, per ASTM A554.

The maneuvering and drag loads were applied simultaneously. The limit maneuvering load for 2/3 cargo at the aft end ( $171 \text{ lbs} \times 3.5 = 599 \text{ lbs}$ ) was applied by stacking bags of lead shot on the frame section. The down load was applied with 21 bags of lead shot (25 lbs each), a steel plate (50 lbs), and a channel (25 lbs), for a total of 600 lbs.

The limit drag ( $321 \text{ lbs} / 2 = 160 \text{ lbs}$ ) was applied with a come-along attached to a load cell.



Figure 5 – Limit Load Test (600 lbs down)



Figure 6 – Limit Drag Load (160 lbs)

The load was removed and the beam checked for permanent deformation. There was no permanent deformation of the beam.

The 600 lbs was loaded back on the frame. The test continued by adding bags of lead shot to reach 925 lbs, ultimate load with 2/3 cargo at the aft end. The drag load was increased to ultimate of 240 lbs.



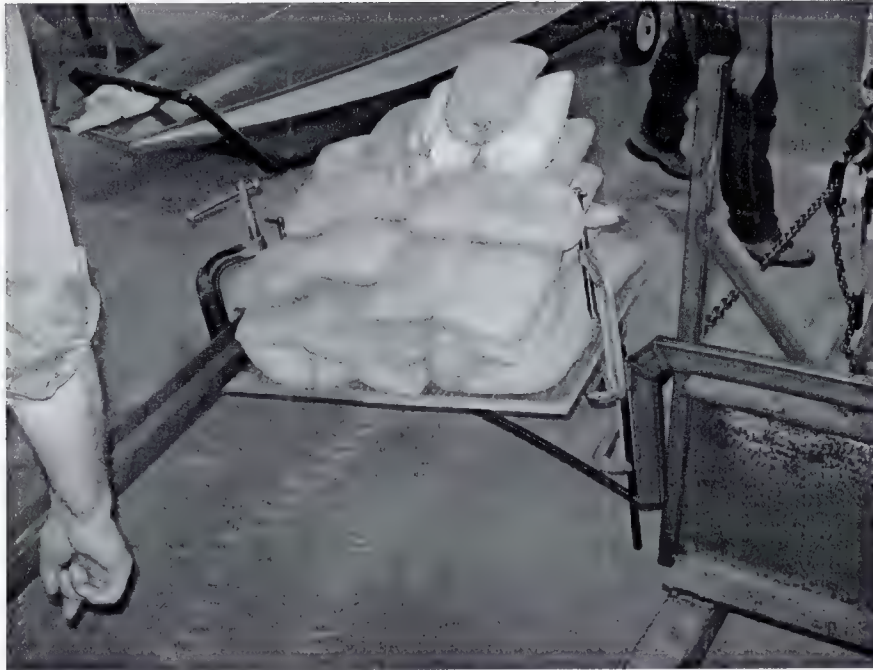


Figure 7 – Ultimate Load Test (925 lb. Down)



Figure 5 – Ultimate Drag Load (250 lbs)

The channel section was used for stabilizing the stack only. The ultimate loads were applied for greater than 3 seconds. The beam did not fail. There was no permanent deformation of the basket attachments. The stainless steel beams are sufficient for installation of the cargo basket.

# AIRWORTHINESS REQUIREMENTS COMPLIANCE PROGRAM

APPLICANT: AERO Design Ltd.  
2013 39<sup>th</sup> Avenue NE  
Calgary, Alberta, T2E 6R7

DATE: 27 April, 2006  
REV. No. 0

CORRESPONDANCE TO:  
(If other than applicant)

MAKE: Bell Helicopter  
MODEL: 206L Series, 407

REGISTRATION: All Applicable  
SERIAL No.: All Applicable

NATURE OF WORK: Installation of Side-Mounted External Cargo Basket

MODEL CERTIFICATION BASIS: FAR 27, Amendment 27-30, with exceptions as noted below. (Bell 407, highest of 206L Series and 407)  
MODIFICATION CERTIFICATION BASIS: FAR 27, Amendment 27-30, with exceptions as noted below.

Airworthiness Requirement		Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
Paragraph		Amdt.				
Subpart B – Flight						
27.27	30	Centre of Gravity Limits	N/A			No change from Type Approval.
27.29	30	Empty Weight and Corresponding C of G	Data specified on inst'n drawing		X	
27.51	30	Takeoff	Flight Test	X		Flight tests performed using the same basket on Bell 206L and similar basket on Bell 407 to satisfy the flight test requirements. Limitations established in previous flight tests to be used with this installation.
27.65	30	Climb: All Engines Operating	Flight Test	X		
27.71	30	Gliding Performance	Flight Test	X		
27.75	30	Landing	Flight Test	X		
27.141	30	Flight Characteristics – General	Flight Test	X		
27.143	30	Controllability and Maneuverability	Flight Test	X		
27.151	30	Flight controls	Flight Test	X		
27.161	30	Trim	Flight Test	X		
27.171	30	Stability – General	Flight Test	X		
27.173	1	Longitudinal Stability	Flight Test	X		
27.175	1	Demonstration of Longitudinal Stability	Flight Test	X		
27.177	30	Static Directional Stability	Flight Test	X		
27.241	30	Ground Resonance	Flight Test	X		
27.251	30	Vibration	Flight Test	X		
Subpart C – Strength Requirements						
27.301	30	Loads – Air Drag Loads	Analysis		X	
27.301	30	Loads – Inertia Loads	Compliance with 27.337 and 27.561		X	



# AIRWORTHINESS REQUIREMENTS COMPLIANCE PROGRAM

Airworthiness Requirement	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
Paragraph	Amdt.				
27.303	30	Factor of Safety		X	
27.305	30	Strength and Deformation		X	
27.307	30	Proof of Structure		X	
27.337(a)	30	Limit Maneuvering Load Factor – Positive		X	Critical load factor in downward direction.
27.471	30	Ground Loads - General	X		Landing gear loads on fitting to be assessed by comparison with ultimate strength of original Type Approved fitting, and test as required.
27.473	30	Ground Loading Conditions and Assumptions			No change to assumptions used for Type Approved configuration
27.501	30	Ground Loading Conditions – Landing Gear with Skids	X		Loads from the cargo basket on the landing gear fittings do not use skid tubes or cross tubes in load path.
27.547	30	Main Rotor Structure	X		See comments for flight test above
27.561	30	Emergency Landing Conditions		X	
27.561(b)3(i)	24	Emergency Landing Conditions – Up		X	
27.561(b)3(ii)	24	Emergency Landing Conditions – Fwd			Forward deflection or failure of basket poses no threat to occupants.
27.561(b)3(iii)	24	Emergency Landing Conditions – Side		X	
27.561(b)3(iv)	24	Emergency Landing Conditions – Down		X	27.337 Maneuvering Load is Critical.
<b>Subpart D – Design and Construction</b>					
27.601	30	Design		X	Design is conventional.
27.603	30	Materials		X	Materials used are specified in Mil-Hdbk-5H.
27.605	30	Fabrication Methods		X	Design is conventional.
27.609	30	Protection of Structure		X	
27.611	30	Inspection Provisions		X	Design is easy to inspect.
27.613	30	Material Strength Properties and Design Values		X	
27.625	30	Fitting Factor		X	
27.725	30	Limit Drop Test			Ref. TCDS Equivalent Safety Finding. Landing gear loads on fitting to be assessed by comparison with ultimate strength of original Type Approved fitting, and test as required.
27.727	30	Reserve Energy Absorption Drop Test			Installation does not block doors.
27.783	30	Doors			
27.787(a)	30	Cargo and Baggage Compartments		X	
27.787(b)	30	Cargo and Baggage Compartments		X	Basket is a closed container.
27.787(c), (d)	30	Cargo and Baggage Compartments			Cargo is external to helicopter.

# AIRWORTHINESS REQUIREMENTS COMPLIANCE PROGRAM

Airworthiness Requirement	Subject for Compliance or Documentary Proof		Form of Substantiation	DOT	DAR	Comments
Paragraph	Amdt.					
27.807	30	Emergency Exits	N/A		X	Installation does not block doors.
27.865(a)	30	External Load Attaching Means	Compliance with 27.337		X	
27.865(b), (c)	30	External Load Attaching Means	N/A			
27.865(d)	30	External Load Attaching Means	N/A			Failure of an attachment does not endanger the rotorcraft.
27.1387	30	Position Light System Dihedral Angles	N/A			No change from Type Approval.
27.1401	30	Anticollision Light System	Statement	X		Light located at FS 396, WL 130 on vertical fin. Basket has no significant effect on visibility of anticollision light.
<b>Subpart G – Operating Limitations and Information</b>						
27.1505	30	Never Exceed Speed	Flight Test,	X		V <sub>NE</sub> limits as specified in the existing Flight Manual (140 kts.)
27.1525	30	Kinds of Operation	Flight Manual Supplement	X		Limited to VFR only.
27.1529	30	Instructions for Continuing Airworthiness	ICA Provided	X		
27.1557(a)	30	Miscellaneous Markings and Placards – Baggage Compartments	Placard		X	
27.1557(b)	30	Miscellaneous Markings and Placards	N/A			
27.1557(c)	30	Miscellaneous Markings and Placards	N/A			
27.1557(d)	30	Miscellaneous Markings and Placards	N/A			
27.1581	30	Rotorcraft Flight Manual – General	Flight Manual Supplement	X		
27.1583(c)	30	Operating Limitations – Weight and Loading Information	Flight Manual Supplement	X		
27.1585	30	Operating Procedures	Flight Manual Supplement	X		
27.1587	30	Performance Information	Flight Manual Supplement	X		
27.1589	30	Loading Information	Flight Manual Supplement & Placard	X		Placard installed on basket lid
<b>Airworthiness Manual Requirements</b>						
527.1581(e)		Rotorcraft Flight Manual – Units	SI and Imperial Units provided in Flight Manual Supplement	X		

**Title:** Quick Release Cargo Basket Installation  
**Approval:** STC  
**Manufacture:** Mfd by Aero Design (amend Approved Product List)  
**Customer:** AERO Design Ltd.  
**Type and Model:** Bell 260L Series, 407

**Definition Of Change:****Description:**

There have been numerous requests from operators to allow the use of quick-release pins (pip-pins) on the Aero Design cargo basket. The attachments from the beam to the basket are not correct for the intended use of pip-pins, which require double shear and no bending to prevent the pin from coming out.

As an alternative to allowing the use of pip-pins, the mounting beams and basket attachments have been re-designed. The new configuration of the beams consists of a hook attachment securing the top of the basket and a keyway securing a fitting near the bottom. The keyway is blocked by a spring loaded pin that must be pushed in to install or remove the basket. Since there are no tools required, the basket can be installed or removed by a pilot.

Basket construction remains the same as the original low mounted basket, but the length is increased by about 2" so the front and rear hoops are now aligned with the beams.

**Primary Changes to the Aeronautical Product:**

Installation of new landing gear fittings, installation of beams, installation of cargo basket

**Secondary Changes to the Aeronautical Product (Required as consequence of primary changes):****Other Relevant Modifications to the Aeronautical Product (Which impact on this change):**

**Substantial Change Evaluation:**

The scope of this change is not substantial.

**Significant Change Evaluation:**

Refer to AMA 500/16, Appendix A, Tables A.2.1 through A.5.6, as applicable.

- Yes ☐ No ☒ The change is an example on the table of Significant Changes.  
Yes ☒ No ☐ The change is close to an example on the table of Significant Changes.  
Yes ☐ No ☒ The change is an example on the table of Not-Significant Changes.  
Yes ☐ No ☒ The change is close to an example on the table of Not-Significant Changes.  
Yes ☒ No ☐ The change is not an example on the tables.

Example found: "A fuselage modification that changes the primary structure, aerodynamics, or operating envelope sufficiently to invalidate certification assumptions."

Service experience with this type of installation has shown that only minor changes to the operating envelope are required. The primary structure is not changed.

- A. Is the general configuration changed? Yes ☐ No ☒  
A change to the general configuration at the product level that is likely to require a new model designation because of the need to distinguish the different product with other product models (eg. performance, interchangeability of major components etc).
- B. Are the principles of construction changed? Yes ☐ No ☒  
A change at the product level to the materials and/or construction methods that affects the overall product's operating characteristics or inherent strength.
- C. Have the assumptions used for certification been invalidated? Yes ☐ No ☒  
Changes to product level assumptions, either design or engineering, associated with product development, compliance demonstration, performance or operating envelope that by themselves are so different, that the original assumptions are invalidated and the existing substantiation cannot be extrapolated to cover the changed product.

**Basis of Certification of the Basic Aeronautical Product:**

Bell 206L, L-1, L-3, TCDS H-92:

CAR 6 dated December 20, 1956, Amendments 6-1 thru 6-4, CAR 6.307(b) and 6.637 of Amendment 6-5, Special Conditions dated October 2, 1962, as revised February 8, 1966.

For 206L-3 the basis of certification is the same as above plus FAR 27.1529 at amendment 18.

Bell 206L-4, TCDS H-92:

FAR Part 27 dated 2 October 1964 Amendment 27-1 thru 27-24 with: 27.45, 27.141, 27.1309 at Amdt 27-20; 27.1093, 27.1545 at Amdt 27-8; 27.79, 27.143, 27.173, 27.175, 27.1519, 27.1585, 27.1587 at Amdt 27-1; 27.2, 27.307, 27.337, 27.351, 27.427, 27.501, 27.571, 27.613, 27.629, 27.663, 27.674, 27.685, 27.727, 27.783, 27.807, 27.861, 27.865 at Amdt 27-28; and 27.391, 27.395, 27.397, 27.681, 27.1357, 27.1361, replaced by 6.220, 6.225, 6.323, 6.623, 6.624, 6.625, 6.626 of CAR Part 6 dated 6 December 1956 Amendment 6-1 thru 6-4.

Exceptions to FAR 27 are the deletion of: 27.71, 27.177, 27.399, 27.562, 27.610, 27.954, 27.1195, 27.1322.

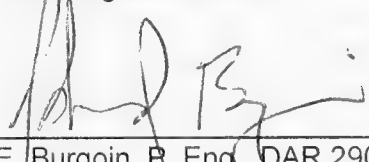
FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1)

**Basis of Certification for the Change to the Aeronautical Product:**

Same as the original basis of certification on the Type Certificate Data Sheet.

Under the authority vested in me by the Minister, I have examined the change in type design listed above according to the established procedures and hereby determine that it is not significant pursuant to subsection 511.13(3) or 513.07(3) of the CARS, to the best of my knowledge and belief.

  
\_\_\_\_\_  
E. J. Burgoin, R. Eng., DAR 290M

27 April, 2006  
Date



MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD698, Rev. 0

1. NAME AND ADDRESS OF APPLICANT:		2. IDENTIFICATION OF PRODUCT	
AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		MAKE:  Bell	MODEL:  206L Series, 407
ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		SERIAL No.:  All Eligible	REGISTRATION:  All Eligible

3. REQUEST FOR:	
A. SUPPLEMENTAL TYPE CERTIFICATE (STC)	<input type="checkbox"/>
B. STC/STA REVISION	<input checked="" type="checkbox"/> STC/STA No. SH00-48
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)	<input type="checkbox"/>
D. LIMITED STC/STA REVISION	<input type="checkbox"/> LSTC/LSTA No.
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE	<input type="checkbox"/>
F. F.A.A. STC REVISION	<input type="checkbox"/> STC No.
G. FAMILIARIZATION OF F.A.A. STC	<input type="checkbox"/> STC No.
H. REPAIR DESIGN APPROVAL (RDC)	<input type="checkbox"/>
I. PARTS DESIGN APPROVAL (PDA)	<input type="checkbox"/>

JACK PICKED UP  
MAY 25/06

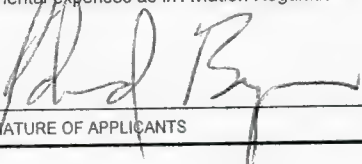
4. TITLE OF MODIFICATION OR REPAIR:
Quick Release Cargo Basket Installation
5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR:
Installation of a cargo basket that does not require tools so as to allow a pilot to install or remove the basket in the field without support from an AME.  Minor updates to the remainder of the approval are also included.

6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:		
A. TA NO. H-92	B. TC No.	C. OTHER

7. PROPOSED BASIS OF APPROVAL:	
A. SAME AS TA <input checked="" type="checkbox"/>	B. SAME AS TC <input type="checkbox"/> C. OTHER <input type="checkbox"/> (Please specify)

8. DOCUMENTATION CHECKLIST	REQUIRED		FOR DOT USE ONLY		
			RECEIVED		
	YES	NO	YES	NO	DATE
COMPLIANCE PROGRAM	X				
MASTER DRAWING LIST	X				
FLIGHT MANUAL SUPPLEMENT	X				
MAINTENANCE MANUAL SUPPLEMENT		X			
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS	X				
ENGINEERING REPORTS	X				
DESIGN DRAWINGS		X			
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS	X				
ELECTRICAL LOAD ANALYSIS		X			
DRAFT STC, LSTC OR RDA		X			
WEIGHT AND MOMENT CHANGE	X				
FLIGHT TEST DATA	X				
OTHER (Specify)					

9. APPLICANT'S REMARKS:

10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4.		
PER: 	Consultant	27 April, 2006
SIGNATURE OF APPLICANTS	TITLE	DATE

11.	
SIGNATURE OF REGIONAL ENGINEER	DATE

**AERO DESIGN LTD.**

2013 – 39<sup>th</sup> Ave N. E., Calgary, Alberta, T2E 6R7

aerodesign@telusplanet.net

## F A X C O V E R S H E E T

DATE: May 23, 2006

TIME: 10:38 AM

TO: **Jerry Stock**  
**Transport Canada**

PHONE:  
FAX: 292-4992

FROM: J. Clarke  
Aero Design Ltd.

PHONE: 403-250-8027  
FAX: 403-250-8333

Number of pages including cover sheet: 2

### RE: CONFORMITY INSPECTION RECORD

---

Jerry,

Please find attached the B043 form.

  
Jeff

## CONFORMITY INSPECTION RECORD

Applicant AERO DESIGN LTD.	Aeronautical Product				Title of Change QUICK RELEASE CARGO BASKET → BEAMS
	Make BELL	Model 206L/407	Serial No. N/A	Region PRAIRIE + NORTHERN	
Drawing No.	Applicant's Inspector Signature	Date	T.C. Inspection Signature	Date	Findings
69831-01	<i>Jeff Clarke</i>	May 23/06	<i>W. Stock</i>	2006/05/23	NIL
69831-02	<i>Jeff Clarke</i>	May 23/06	<i>W. Stock</i>	2006/05/23	NIL

APPLICANT'S ATTESTATION

I hereby confirm that the prototype installation for the subject

☒ MODIFICATION,☐ REPAIR,☐ TSO/AP-TC ARTICLE

is in conformity with the applicable installation drawing(s) listed above  
and that necessary ground tests have been carried out.  
[Please check (✓) the applicable box.]

Additional Information:

69831-01 = HSS BEAM

69831-02 = STAINLESS BEAM

Signature:

*Jeff Clarke*TC INSPECTION☒ ACCEPTABLE☐ UNACCEPTABLERemarks:

Assembly was not  
powder coated as yet.

Signature:

*W. Stock*



SEE ASCI  
IF T.C.  
DOING FLIGHT

# AIRWORTHINESS NOTICE

## CONFORMITY INSPECTION ASSOCIATED WITH APPLIANCE TYPE CERTIFICATION OR MODIFICATION/REPAIR APPROVAL PROJECTS

*(This Airworthiness Notice supersedes AN No. B043 Edition 1, dated 24 April 1998.)*

### Purpose

The purpose of this notice is to explain the responsibilities of an applicant prior to requesting a conformity inspection associated with the prototype evaluation of a supplemental type certificate (STC), a limited supplemental type certificate (L/STC), a repair design certificate (RDC), a TSO and/or an appliance type certificate (AP-TC) installation. This revision is intended to clarify the qualifications for those persons responsible for the conformity inspections.

### Background

In several cases, prototype installations have not been performed in accordance with the applicant's installation drawings nor have the necessary ground tests been conducted, where required, prior to seeking a conformity inspection by Transport Canada (TC). This situation may often result in ineffective use of TC resources.

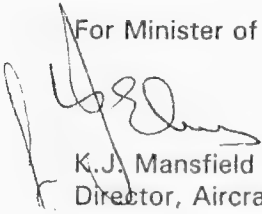
### Conformity Requirements (Prototype Installation)

The need for a conformity inspection by Transport Canada on a prototype installation associated with an STC, L/STC, RDC, AP-TC or TSO design approval project will be determined by the regional engineer responsible for the project, and the applicant will be advised accordingly. Where such a requirement has been identified, the prototype installation is to be verified by the applicant or his designated person for conformity with the applicable installation drawings and, where required, ground tests performed to determine functionality. The above functions are to be carried out prior to the applicant requesting the required conformity inspection by TC representatives.

### Confirmation

A written confirmation is to be provided to the responsible regional project engineer using the Conformity Inspection Record form appended to this notice, or an equivalent form acceptable to TC. The completed form is to be signed by an appropriately rated Aircraft Maintenance Engineer (AME) or Approved Maintenance Organization (AMO). TC form 24-0045 (Conformity Certificate - Repair or Modification), which is intended to certify the installation of an approved modification or repair, should not be used as a Conformity Inspection Record. The Conformity Inspection Record should be accompanied by details pertaining to the location of the test article, the proposed modification or repair, and a proposed date for accomplishing the conformity inspection by TC Airworthiness Inspectors.

For Minister of Transport

  
K.J. Mansfield  
Director, Aircraft Certification



**Jeff Clarke**

---

**From:** Staal, Jack [STAALJ@tc.gc.ca]  
**Sent:** Tuesday, May 16, 2006 4:52 PM  
**To:** jeff@aerodesign.ca; Ted Burgoin (E-mail)  
**Subject:** RE: Cargo Basket Materials  
**Attachments:** Beams\_FARs.pdf

Jeff/Ted,

Ref your word attachment, the last statement alludes to similarity of bridge and helicopter environments.....???

What is HSS material?

It is noted that you do not intend to use analysis for substantiation testing is allowed per 27.305/.307.

Testing is also allowed for material qualification ref .603(a)/.613(e). What specification do you have on the drawing(s)??

What are the tests plans and conformity schedules for these tests?

Ted, per your request, I have tentatively booked a visit for Thursday next week May 25th (driving down, TC vehicle) (Should arrive 10, 10:30 AM). OK?

Regards,

-----Original Message-----

**From:** Jeff Clarke [mailto:jeff@aerodesign.ca]  
**Sent:** Friday, May 12, 2006 10:54 AM  
**To:** Staal, Jack  
**Subject:** Cargo Basket Materials

Jack,

In response to your email from May 5, please find attached our rationale for using HSS material for the beams on our new basket. We do not intend to use analysis for substantiation of the beams.

The materials is 2 x 1, item YL-38-05 on the mill test report.

Let me know if you have any questions.

Jeff Clarke  
Technologist

AERO Design Ltd.

5/17/2006



### Tube Dimensions

$$h := 2 \cdot \text{in}$$

$$b := 1 \cdot \text{in}$$

$$t := .125 \cdot \text{in}$$

### Moment of Inertia

$$I_{yy} := \frac{1}{12} \cdot [(h \cdot b^3) - (h - 2 \cdot t) \cdot (b - 2 \cdot t)^3]$$

$$I_{yy} = 0.105 \cdot \text{in}^4$$

0.092 → from HSS data sheet

$$I_{xx} := \frac{1}{12} \cdot [(b \cdot h^3) - (b - 2 \cdot t) \cdot (h - 2 \cdot t)^3]$$

$$I_{xx} = 0.332 \cdot \text{in}^4$$

0.280

### Loads

#### Maneuvering load

$$w_{\text{basket}} := 45 \cdot \text{lbf}$$

$$w_{\text{basket}} = 200.17 \cdot \text{kg} \cdot \text{m} \cdot \text{sec}^{-2} \quad ?$$

$$w_{\text{beam}} := 10 \cdot \text{lbf}$$

$$w_{\text{cargo}} := 200 \cdot \text{lbf}$$

$$w_{\text{cargo}} = 889.645 \cdot \text{kg} \cdot \text{m} \cdot \text{sec}^{-2} \quad ?$$

$$n_{\text{man}} := 3.5$$

$$n_{\text{sf}} := 1.5$$

Assume 2/3 of the cargo weight is taken by the aft beam (critical geometry)

$$P_{\text{lim}} := n_{\text{man}} \cdot \left( \frac{2}{3} \cdot w_{\text{cargo}} + w_{\text{beam}} + \frac{1}{2} \cdot w_{\text{basket}} \right)$$

$$P_{\text{lim}} = 580.417 \cdot \text{lbf}$$

$$P_{\text{ult}} := P_{\text{lim}} \cdot n_{\text{sf}}$$

$$P_{\text{ult}} = 870.625 \cdot \text{lbf}$$

$$\text{kts} := 1.15 \cdot \text{mph}$$

### Drag

$$V_{ne} := 140 \cdot \text{kts}$$

$$V_d := \frac{V_{ne}}{0.9}$$

$$c_d := 1.6$$

$$\rho := 0.00238 \cdot \frac{\text{slug}}{\text{ft}^3}$$

$$A := 16 \cdot \text{in} \cdot 23 \cdot \text{in}$$

$$A = 2.556 \cdot \text{ft}^2 \quad \text{ok}$$

$$D := c_d \cdot A \cdot \frac{1}{2} \cdot \rho \cdot V_d^2$$

$$D = 334.951 \cdot \text{lbf}$$

$$D_{ult} := D \cdot 1.5$$

$$D_{ult} = 502.426 \cdot \text{lbf}$$

$$377.1 \text{ in}^2 = 2.62 \text{ ft}^2$$

### Bending Moments and Stresses

#### Maneuvering Load Factor

$$l_{arm} := 28.25 \cdot \text{in}$$

$$M_{lim} := p_{lim} \cdot l_{arm}$$

$$M_{lim} = 1.64 \cdot 10^4 \cdot \text{lbf} \cdot \text{in}$$

$$f_{lim} := \frac{M_{lim} \cdot \frac{1}{2} \cdot h}{I_{xx}}$$

$$f_{lim} = 4.943 \cdot 10^4 \cdot \text{psi}$$

#### Moment arm (centre basket to l/g ftg)

$$M_{ult} := p_{ult} \cdot l_{arm}$$

$$M_{ult} = 2.46 \cdot 10^4 \cdot \text{lbf} \cdot \text{in}$$

$$f_{ult} := \frac{M_{ult} \cdot \frac{1}{2} \cdot h}{I_{xx}}$$

$$f_{ult} = 7.415 \cdot 10^4 \cdot \text{psi}$$

## Drag

Drag load is split equally between forward and aft support beams

$$I_{\text{drag\_arm}} := 17.25 \cdot \text{in}$$

$$M_{\text{drag\_lim}} := \frac{D}{2} \cdot I_{\text{drag\_arm}}$$

$$M_{\text{drag\_lim}} = 2.889 \cdot 10^3 \cdot \text{lbf} \cdot \text{in}$$

$$f_{\text{drag\_lim}} := \frac{M_{\text{drag\_lim}} \cdot \frac{1}{2} \cdot b}{I_{yy}}$$

$$f_{\text{drag\_lim}} = 1.374 \cdot 10^4 \cdot \text{psi}$$

$$M_{\text{drag\_ult}} := \frac{D_{\text{ult}}}{2} \cdot I_{\text{drag\_arm}}$$

$$M_{\text{drag\_ult}} = 4.333 \cdot 10^3 \cdot \text{lbf} \cdot \text{in}$$

$$f_{\text{drag\_ult}} := \frac{M_{\text{drag\_ult}} \cdot \frac{1}{2} \cdot b}{I_{yy}}$$

$$f_{\text{drag\_ult}} = 2.061 \cdot 10^4 \cdot \text{psi}$$

## Allowable Stresses

$$\text{MPa} := 10^6 \cdot \text{Pa}$$

$$F_{ty} := 400 \cdot \text{MPa}$$

$$\text{ksi} := 10^3 \cdot \text{psi}$$

$$F_{ty} = 58.015 \cdot \text{ksi}$$

$$F_{tu} := 520 \cdot \text{MPa}$$

$$F_{tu} = 75.42 \cdot \text{ksi}$$

## Interaction Formula

### Limit Condition

$$R_{\text{drag}} := \frac{f_{\text{drag\_lim}}}{F_{ty}}$$

$$R_{\text{drag}} = 0.237$$

$$R_{\text{man}} := \frac{f_{\text{lim}}}{F_{ty}}$$

$$R_{\text{man}} = 0.852$$

### Ultimate Condition

$$R_{\text{drag\_ult}} := \frac{f_{\text{drag\_ult}}}{F_{tu}}$$

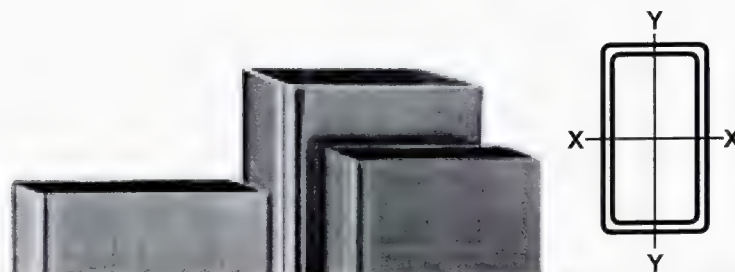
$$R_{\text{drag\_ult}} = 0.273$$

$$R_{\text{man\_ult}} := \frac{f_{\text{ult}}}{F_{tu}}$$

$$R_{\text{man\_ult}} = 0.983$$



# DIMENSIONS AND SECTION PROPERTIES OF *RECTANGULAR* HSS



Nominal Size			Weight per Foot	Wall Thickness t	b/t	h/t	Cross Sectional Area	X-X Axis				Y-Y Axis				Torsional Stiffness Constant J	Torsional Shear Constant C	Surface Area Per Foot
in.	in.	in.	lb.	in.			in. <sup>2</sup>	I <sub>x</sub> in. <sup>4</sup>	S <sub>x</sub> in. <sup>3</sup>	r <sub>x</sub> in.	Z <sub>x</sub> in. <sup>3</sup>	I <sub>y</sub> in. <sup>4</sup>	S <sub>y</sub> in. <sup>3</sup>	r <sub>y</sub> in.	Z <sub>y</sub> in. <sup>3</sup>	in. <sup>4</sup>	in. <sup>3</sup>	ft. <sup>2</sup>
3 1/2	x 2 1/2	3/8	12.17	0.349	4.2	7.0	3.39	4.74	2.71	1.18	3.59	2.75	2.20	0.902	2.82	6.16	4.57	0.90
		5/16	10.58	0.291	5.6	9.0	2.94	4.34	2.48	1.22	3.20	2.53	2.03	0.929	2.52	5.53	4.03	0.92
		1/4	8.81	0.233	7.7	12.0	2.44	3.79	2.17	1.25	2.74	2.23	1.78	0.956	2.16	4.75	3.40	0.93
		3/16	6.87	0.174	11.4	17.1	1.89	3.09	1.76	1.28	2.18	1.82	1.46	0.983	1.72	3.78	2.67	0.95
		1/8	4.75	0.116	18.6	27.2	1.30	2.23	1.28	1.31	1.54	1.33	1.06	1.01	1.22	2.67	1.87	0.97
3	x 2 1/2	5/16	9.51	0.291	5.6	7.3	2.64	2.91	1.94	1.05	2.51	2.17	1.74	0.907	2.20	4.34	3.39	0.83
		1/4	7.96	0.233	7.7	9.9	2.21	2.57	1.71	1.08	2.16	1.93	1.54	0.935	1.90	3.74	2.87	0.85
		3/16	6.23	0.174	11.4	14.2	1.71	2.11	1.41	1.11	1.73	1.59	1.27	0.962	1.52	3.00	2.27	0.87
		1/8	4.33	0.116	18.6	22.9	1.19	1.54	1.03	1.14	1.23	1.16	0.930	0.990	1.09	2.13	1.59	0.88
3	x 2	5/16	8.45	0.291	3.9	7.3	2.35	2.38	1.58	1.00	2.11	1.23	1.23	0.724	1.58	2.87	2.60	0.75
		1/4	7.11	0.233	5.6	9.9	1.97	2.12	1.42	1.04	1.83	1.11	1.11	0.750	1.38	2.52	2.23	0.77
		3/16	5.59	0.174	8.5	14.2	1.54	1.76	1.18	1.07	1.48	0.931	0.931	0.777	1.12	2.05	1.78	0.78
		1/8	3.90	0.116	14.2	22.9	1.07	1.30	0.866	1.10	1.06	0.692	0.692	0.804	0.803	1.47	1.25	0.80
3	x 1 1/2	1/4	6.26	0.233	3.4	9.9	1.74	1.68	1.12	0.982	1.51	0.541	0.722	0.558	0.911	1.44	1.58	0.68
		3/16	4.96	0.174	5.6	14.2	1.37	1.42	0.945	1.02	1.24	0.466	0.621	0.584	0.752	1.21	1.28	0.70
		1/8	3.48	0.116	9.9	22.9	0.96	1.06	0.706	1.05	0.895	0.355	0.474	0.610	0.550	0.886	0.920	0.72
3	x 1	3/16	6.32	0.174	2.7	14.2	1.19	1.07	0.713	0.947	0.989	0.172	0.344	0.380	0.432	0.526	0.792	0.62
		1/8	3.05	0.116	5.6	22.9	0.84	0.817	0.545	0.987	0.728	0.138	0.275	0.405	0.325	0.408	0.585	0.63
2 1/2	x 1 1/2	1/4	5.41	0.233	3.4	7.7	1.51	1.03	0.820	0.825	1.11	0.447	0.596	0.544	0.764	1.10	1.29	0.60
		3/16	4.32	0.174	5.6	11.4	1.19	0.881	0.705	0.859	0.915	0.389	0.519	0.571	0.636	0.929	1.05	0.62
		1/8	3.05	0.116	9.9	18.6	0.84	0.668	0.535	0.892	0.671	0.299	0.399	0.597	0.469	0.687	0.759	0.63
2	x 1 1/2	3/16	3.68	0.174	5.6	8.5	1.02	0.494	0.494	0.697	0.639	0.312	0.416	0.553	0.521	0.664	0.822	0.53
		1/8	2.63	0.116	9.9	14.2	0.72	0.383	0.383	0.727	0.475	0.244	0.325	0.580	0.389	0.496	0.599	0.55
2	x 1	3/16	3.04	0.174	2.7	8.5	0.84	0.349	0.349	0.643	0.480	0.112	0.223	0.364	0.288	0.301	0.505	0.45
		1/8	2.20	0.116	5.6	14.2	0.61	0.280	0.280	0.679	0.366	0.092	0.184	0.389	0.223	0.238	0.380	0.47

## Quick Release Cargo Basket Beams

### Compliance with FAR 27.603 and 27.613

#### FAR 27.603 – Materials

*The suitability and durability of materials used for parts, the failure of which could adversely affect safety, must--*

- (a) Be established on the basis of experience or tests;*
- (b) Meet approved specifications that ensure their having the strength and other properties assumed in the design data; and*
- (c) Take into account the effects of environmental conditions, such as temperature and humidity, expected in service.*

#### AC27-1B, Section D, AC27.603 b. – Procedures:

*(1) Where possible, materials that meet widely accepted specifications such as AISI, SAE, MIL, or AMS and alloys which have favorable experience or tests should be used. Where company developed materials are used, approved specifications are required to ensure the developed properties are duplicated in each lot of material.*

The material we have selected meets the requirements of CSA G40.21 50W (ASTM A500 Gr. C). This is widely used in structural applications such as bridges and other dynamically loaded structures. Favorable experience has been shown with this material.

#### FAR 27.613 – Material strength properties and design values:

*(a) Material strength properties must be based on enough tests of material meeting specifications to establish design values on a statistical basis.*

*(b) Design values must be chosen to minimize the probability of structural failure due to material variability. Except as provided in paragraphs (d) and (e) of this section, compliance with this paragraph must be shown by selecting design values that assure material strength with the following probability--*

- (1) Where applied loads are eventually distributed through a single member within an assembly, the failure of which would result in loss of structural integrity of the component, 90 percent probability with 95 percent confidence; and*
- (2) For redundant structure, those in which the failure of individual elements would result in applied loads being safely distributed to other load-carrying members, 90 percent probability with 95 percent confidence.*

*(c) The strength, detail design, and fabrication of the structure must minimize the probability of disastrous fatigue failure, particularly at points of stress concentration.*

*(d) Design values may be those contained in the following publications (available from the Naval Publications and Forms Center, 5301 Tabor Avenue, Philadelphia, Pennsylvania 19120) or other values approved by the Administrator:*

- (1) MIL-HDBK-5, "Metallic Materials and Elements for Flight Vehicle Structure".*
- (2) MIL-HDBK-17, "Plastics for Flight Vehicles".*
- (3) ANC-18, "Design of Wood Aircraft Structures".*
- (4) MIL-HDBK-23, "Composite Construction for Flight Vehicles".*

*(e) Other design values may be used if a selection of the material is made in which a specimen of each individual item is tested before use and it is determined that the actual strength properties of that particular item will equal or exceed those used in design.*



AC27-1B, Section D, AC27.613:

*a. Explanation. The rule requires the use of materials that have a known minimum strength value. The structure must not be under-strength and must be designed to minimize fatigue failure.*

AC23-19, Section D, AC23.613(e):

*Materials delivered according to specifications exceed the guaranteed-minimum-strength called out by drawings 99 times out of 100. Military Handbook Metallic Materials and Elements for Aerospace Vehicle Structures (MIL-HDBK-5), industry, and professional society material specifications intend this result, i.e., with 95 percent confidence that 99 percent of the materials will exceed selected design values. That is, the materials used in the test article (and in production articles) are stronger than the minimum values certificated in the design.*

*Parts (elements) are manufactured and delivered to nominal sizes within tolerances. This means that they will either deliver minimal performance or more than promised.*

The material is provided with mill certification that the minimum tensile strength of CSA G40.21 50W (yield and ultimate) has been achieved.

The material is required to have minimum 350 MPa (50 ksi) yield tensile strength. The current batch of material we have has a mill test report showing the material to be 400 MPa yield tensile strength.

AC27-1B, Section D, AC27.613

*(3) Section 27.613(d) requires the selection of materials that will retain design values and properties in the type of service environment and for the length of service time intended for the structure.*

Service environment outside of the helicopter not different than a bridge or other outdoor structure.

(iv) Require notification of the manufacturer of any unusual wear or deterioration of critical parts and the return of affected parts for investigation when appropriate;

(3) To the extent needed for control of critical characteristics, procedures and processes for manufacturing critical parts (including test articles) are defined (for example material source, forging procedures, machining operations and sequence, inspection techniques, and acceptance and rejection criteria). Procedures for changing these manufacturing procedures should also be established.

(4) Any changes to the manufacturing procedures, to the design of a critical part, to the approved operating environment, or to the design loading spectrum are evaluated to establish the effects, if any, on the fatigue evaluation of the part.

(5) Materials review procedures for critical parts (i.e. procedures for determining the disposition of parts having manufacturing errors or material flaws) are in accordance with paragraphs (3) and (4) above.

(6) Critical parts are identified as required, and relevant records relating to the identification are maintained such that it is possible to establish the manufacturing history of the individual parts or batches of parts.

(7) The critical characteristics of critical parts produced in whole or in part by suppliers are maintained.

AC 27.603. § 27.603 (Amendment 27-16) MATERIALS.

a. Explanation. The rule requires that the suitability and durability of materials, the failure of which could adversely affect safety, must be determined by three-fold considerations:

(1) Considerations based on experience or tests.

(2) By meeting approved specifications.

(3) By taking into account environmental conditions such as temperature and humidity.

b. Procedures.

(1) Where possible, materials that meet widely accepted specifications such as AISI, SAE, MIL, or AMS and alloys which have favorable experience or tests should be used. Where company developed materials are used, approved specifications are required to ensure the developed properties are duplicated in each lot of material.

(2) Environmental conditions may be taken into account by service experience, coupon testing, full-scale testing, or a combination of testing and experience, MIL-HDBK's -5, -17, and -23 include some environmental effects and contain reference to additional methods of testing for environmental effects.

(3) Section 27.613 concerns strength properties and design values. (See paragraph AC 27.613.)

AC 27.605. § 27.605 (Amendment 27-16) FABRICATION METHODS.

a. Explanation. The basic requirement of this rule is that the methods of fabrication must produce sound structure and produce it consistently.

(1) A process specification is required for fabrication processes requiring close control.

(2) A test program is explicitly required for each new aircraft fabrication method.

b. Procedures.

(1) The approved specifications required by this rule may either be established government/industry specifications such as MIL, AISI, ASIM, or SAE; or the specifications may be company-developed proprietary specifications. Sufficient data should be provided to the FAA/AUTHORITY aircraft engineering offices to show that the desired features are provided by the process specification. In addition, sufficient process controls, inspections, and tests should be coordinated with FAA/AUTHORITY manufacturing inspection personnel to ensure that continued quality of the process is provided.

(2) In addition to the examples given by the rule; i.e., gluing, spot welding, and heat treating process, specifications should also be prepared for types of welding other than spot welding, for platings of metals, for protective finishes (other than decorative), for sealing, and for unique fabrication methods such as those used for composite materials.

(3) The required test programs should consider static strength effects, fatigue strength effects, and environmental effects as appropriate to the processes.

AC 27.607. § 27.607 (Amendment 27-4) FASTENERS.

a. Explanation. Section 27.607 of Amendment 27-4 requires dual locking removable fasteners in critical locations. A nonfriction locking device is specifically required in any bolt subject to rotation, as stated in the rules.

b. Procedures. Advisory Circular 20-71 contains information, procedures, and means of complying with § 27.607 of Amendment 27-4.



## Federal Aviation Regulation

### ▼ Sec. 27.613

Part 27 AIRWORTHINESS STANDARDS: NORMAL CATEGORY ROTORCRAFT	
Subpart D--Design and Construction	General

### Sec. 27.613

Material strength properties and design values.

(a) Material strength properties must be based on enough tests of material meeting specifications to establish design values on a statistical basis.

[(b) Design values must be chosen to minimize the probability of structural failure due to material variability. Except as provided in paragraphs (d) and (e) of this section, compliance with this paragraph must be shown by selecting design values that assure material strength with the following probability--

(1) Where applied loads are eventually distributed through a single member within an assembly, the failure of which would result in loss of structural integrity of the component, 90 percent probability with 95 percent confidence; and

(2) For redundant structure, those in which the failure of individual elements would result in applied loads being safely distributed to other load-carrying members, 90 percent probability with 95 percent confidence.]

(c) The strength, detail design, and fabrication of the structure must minimize the probability of disastrous fatigue failure, particularly at points of stress concentration.

[(d) Design values may be those contained in the following publications (available from the Naval Publications and Forms Center, 5301 Tabor Avenue, Philadelphia, Pennsylvania 19120) or other values approved by the Administrator:]

(1) MIL-HDBK-5, "Metallic Materials and Elements for Flight Vehicle Structure".

(2) MIL-HDBK-17, "Plastics for Flight Vehicles".

(3) ANC-18, "Design of Wood Aircraft Structures".

(4) MIL-HDBK-23, "Composite Construction for Flight Vehicles".

[(e) Other design values may be used if a selection of the material is made in which a specimen of each individual item is tested before use and it is determined that the actual strength properties of that particular item will equal or exceed those used in design.]

Amdt. 27-26, Eff. 4/5/90

### ► Comments

### ▼ Document History

Notice of Proposed Rulemaking Actions:

Notice of Proposed Rulemaking. Notice No. 88-7; Issued on 03/01/89.

Final Rule Actions:

Final Rule. Docket No. 25570; Issued on 02/12/90.

**Federal Aviation Regulation****▼ Sec. 27.603**

Part 27 AIRWORTHINESS STANDARDS: NORMAL CATEGORY ROTORCRAFT	
Subpart D--Design and Construction	General

Sec. 27.603

Materials.

The suitability and durability of materials used for parts, the failure of which could adversely affect safety, must--

- [(a) Be established on the basis of experience or tests;
- (b) Meet approved specifications that ensure their having the strength and other properties assumed in the design data; and
- (c) Take into account the effects of environmental conditions, such as temperature and humidity, expected in service.]

Amdt. 27-16, Eff. 12/1/78

**► Comments****▼ Document History****Notice of Proposed Rulemaking Actions:**

Notice of Airworthiness Review Program No. 2; Notice No. 75-10; Issued on 02/27/75.  
Notice of Airworthiness Review Program No. 3; Notice No. 75-19; Issued on 05/13/75.  
Notice of Airworthiness Review Program No. 5; Notice No. 75-23; Issued on 05/19/75.  
Notice of Airworthiness Review Program No. 7; Notice No. 75-26; Issued on 06/09/75.  
Notice of Airworthiness Review Program No. 8; Notice No. 75-31; Issued on 06/30/75.

**Final Rule Actions:**

Final Rule. Docket No. 14324, 14606, 14625, 14685, 14779; Issued on 10/20/78.



**Jeff Clarke**

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**From:** Ted Burgoin [ted@aerodesign.ca]  
**Sent:** Friday, May 05, 2006 3:06 PM  
**To:** jeff@aerodesign.ca  
**Subject:** Fw: 407/206 Basket with Quick Release Attachment

----- Original Message -----

**From:** Staal, Jack  
**To:** Ted Burgoin  
**Sent:** Friday, May 05, 2006 2:49 PM  
**Subject:** RE: 407/206 Basket with Quick Release Attachment

Hi Ted,

Both AC23-19 and AC25-21 discuss material correction factors related to test articles. I was unable to locate guidance on material correction in AC27 and AC29. As I understand it you have company tested to twice the required ultimate load.... without yield/deformation. It seems you have, perhaps inadvertently, built in a substantial material correction factor in your tests (good thing). The basis for the minimum guaranteed material values should be looked at for acceptability/compliance to 27.613.

Using analysis requires appropriate approved allowables for the material. A materials allowables program may be in order for an analysis approach unless the supplier is able to show that the "guaranteed minimums" are developed in accord with aeronautical methods complying with 27.613.

You sure you want to use a non aeronautical qualified material??

Hope this helps,

*J.H. (Jack) Staal*

Aircraft Certification Technologist | Technologue, Certification des aeronefs.  
 Prairie and Northern Region | Region des Prairies et du Nord

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Transport Canada | Transports Canada  
 1100- 9700, Jasper Avenue | avenue Jasper (RAED)  
 Edmonton, AB T5J 4E6  
 Government of Canada | Gouvernement du Canada

-----Original Message-----

**From:** Ted Burgoin [mailto:ted@aerodesign.ca]  
**Sent:** Thursday, May 04, 2006 4:35 PM  
**To:** Staal, Jack  
**Subject:** Re: 407/206 Basket with Quick Release Attachment

Beams will stay on the helicopter, would be nice to get them off but can't (to be interpreted as "haven't yet") think of a good way of getting them off that will stand up to time. Given that all this junk goes through

5/5/2006

the little fan at the back if it comes off, I'm looking for some substantial attachment that can be used to pull the helicopter out of quick-sand if needed.

Both front and aft beams have the same release, aft beam has the release fitting 3" down from the top of the beam to make the basket level with the fuselage waterlines.

Ted.

----- Original Message -----

**From:** Staal, Jack

**To:** Ted Burgoin

**Sent:** Thursday, May 04, 2006 3:47 PM

**Subject:** RE: 407/206 Basket with Quick Release Attachment

Thanks Ted,

Looks like a tidy set up/design. Same set up basicly on both beams??

Do the beams "quick release" from the helicopter as well??

Regards,

*J.H. (Jack) Staal*

Aircraft Certification Technologist | Technologue, Certification des aeronefs.

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1100- 9700, Jasper Avenue | avenue Jasper (RAED)

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Government of Canada | Gouvernement du Canada

-----Original Message-----

**From:** Ted Burgoin [mailto:[ted@aerodesign.ca](mailto:ted@aerodesign.ca)]

**Sent:** Thursday, May 04, 2006 12:15 PM

**To:** Staal, Jack

**Subject:** 407/206 Basket with Quick Release Attachment

Morning Jack:

Just a few pictures of how the basket will attach in the new design as we discussed so that you can think about it.

Ted.